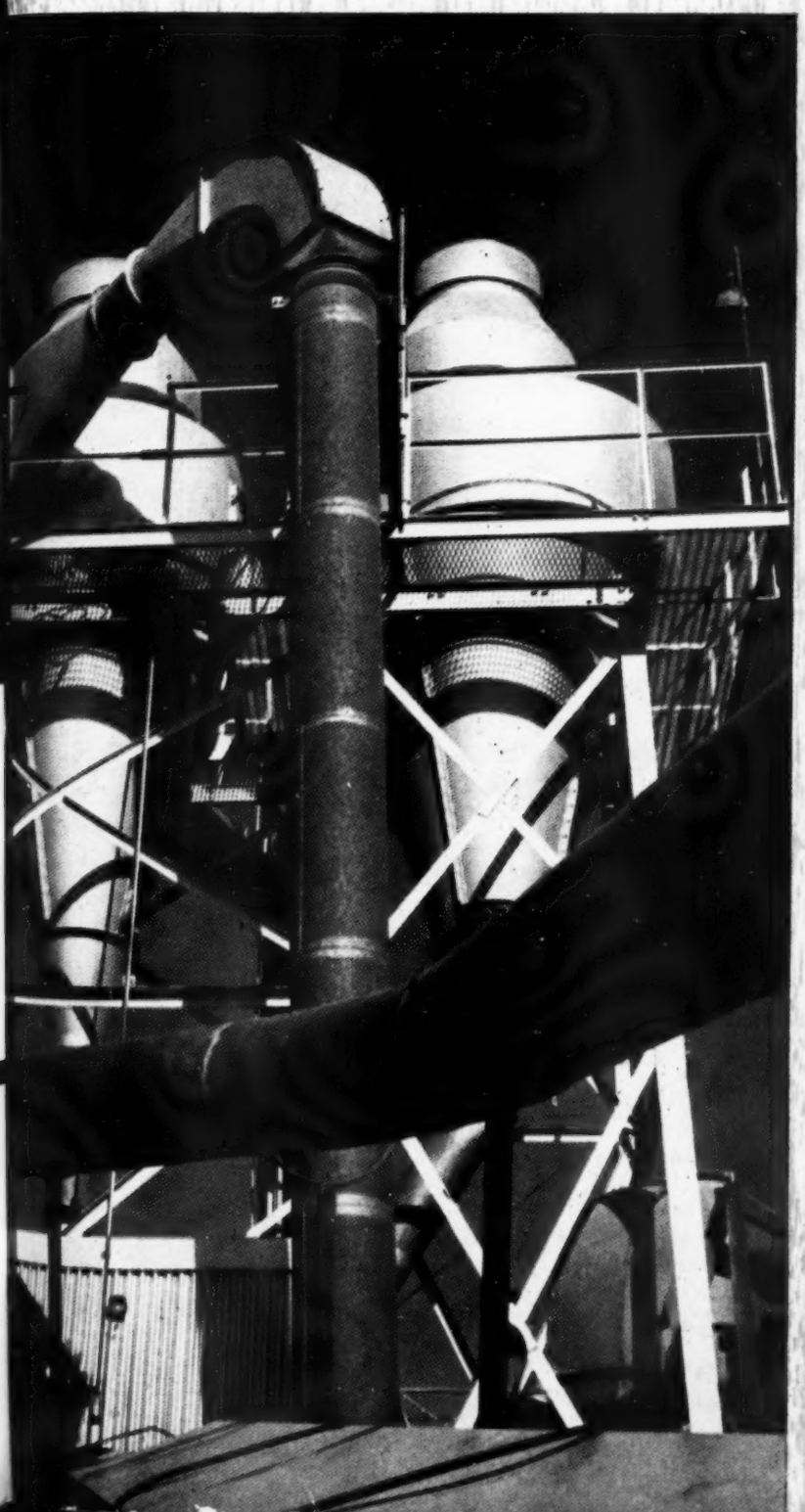
HITCHCOCK'S

FOR MANAGEMENT MEN IN WOODWORKING • 50 CENTS APRIL 1961

Science

Serial Dept.

APR 1 0 1961



PARTICLE BOARD

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also in this issue:

"How We Work With Designers"

Trends In The American Wood Industry

Flakeboard Plant Tailored To Requirements

"Spotnailers increased our production 100%"

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EL PASO, TEXAS

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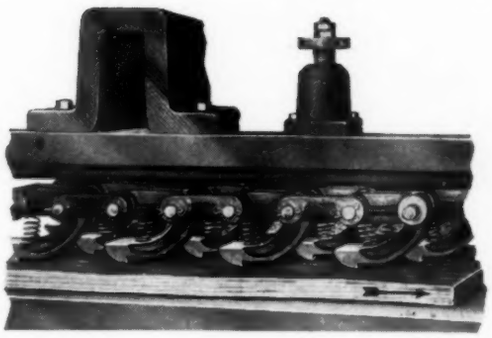

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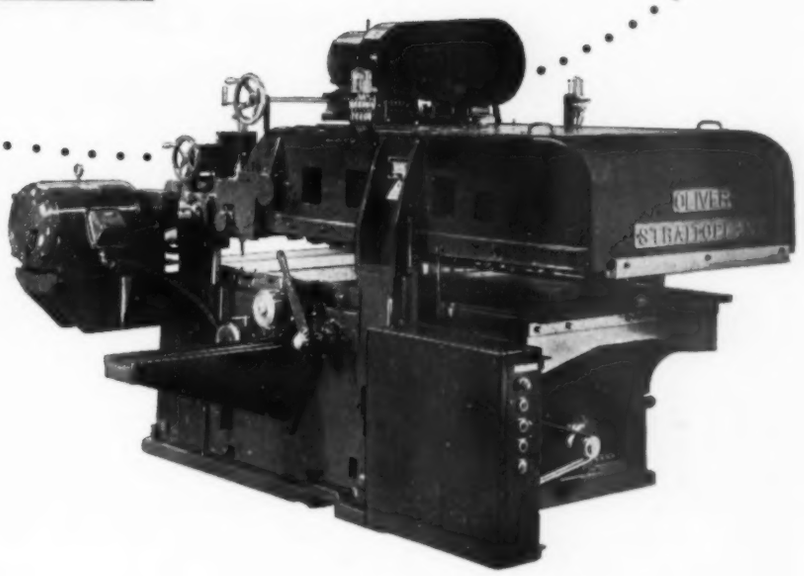

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planes both sides of warped stock smooth and parallel — at the same time!

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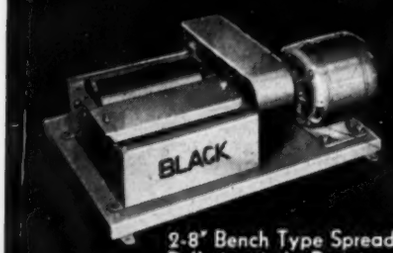
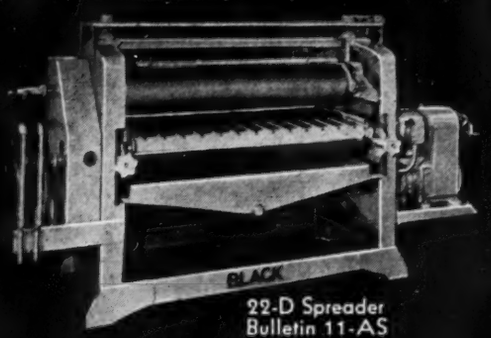
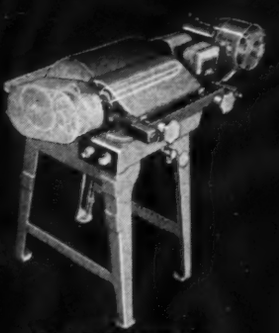


2-8" Bench Type Spreader
Bulletin 11-A, Part 1



22-D Spreader
Bulletin 11-AS


No. 567 Spreader
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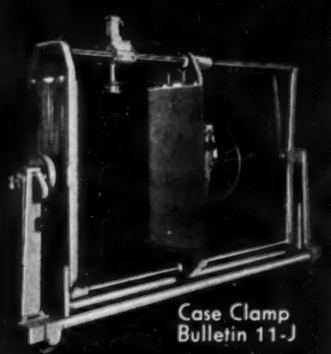
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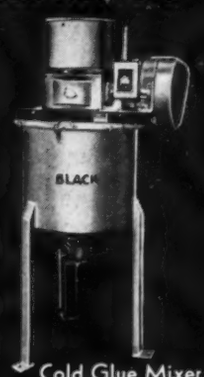

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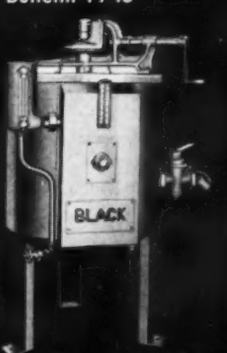
Bulletin 11-I

Clamp Carrier
Bulletin 11-K

Portable Glue Mixer
Bulletin 11-IS

Sash, Frame and Door Clamp
Bulletin 11-M



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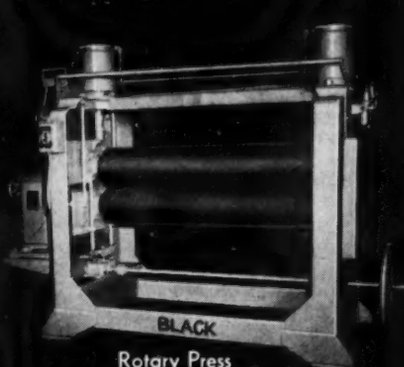
Bulletin 11-H



Rotary Press
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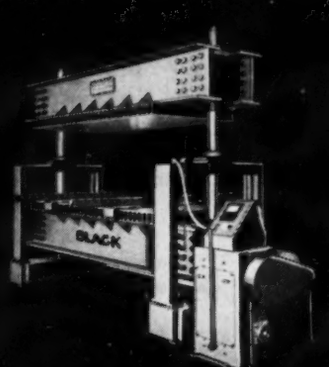

Motorized Laminating Press
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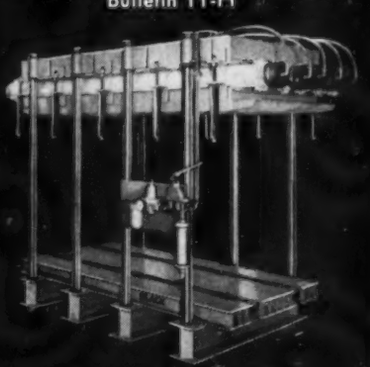
Air Hose Laminating Press
Bulletin 11-D

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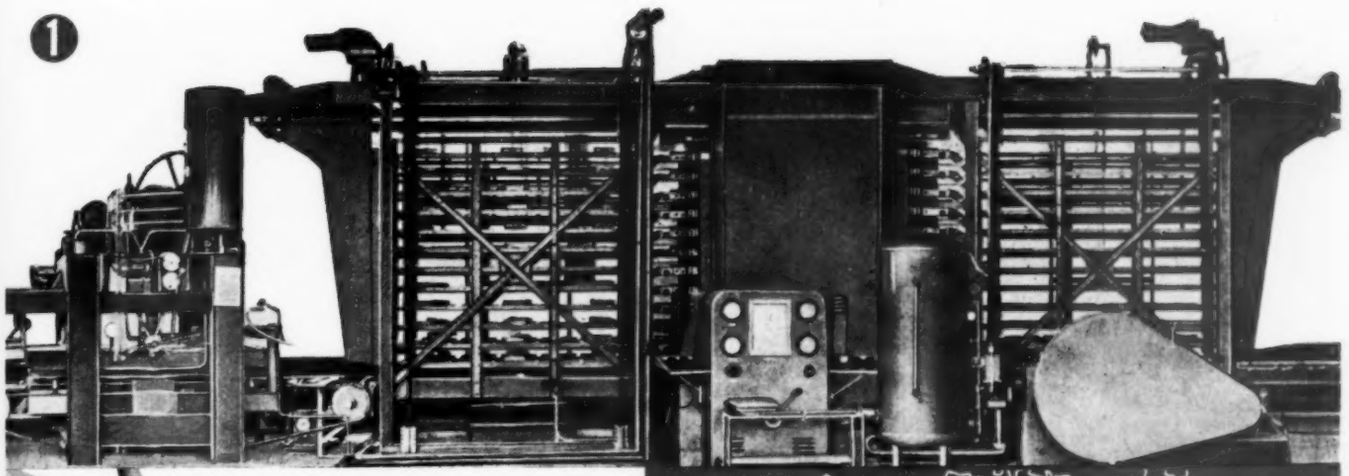

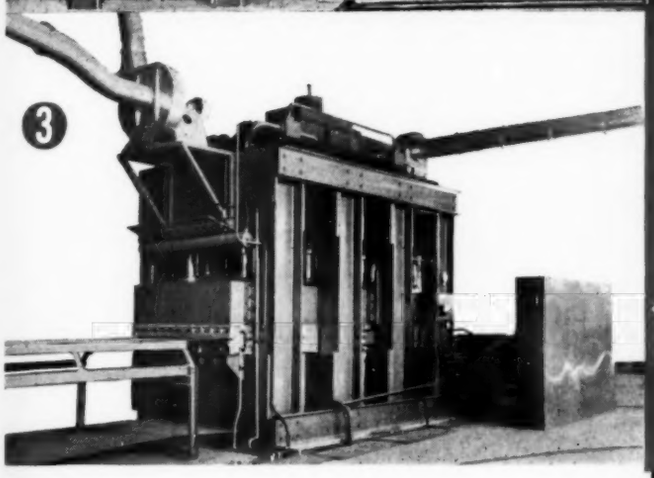

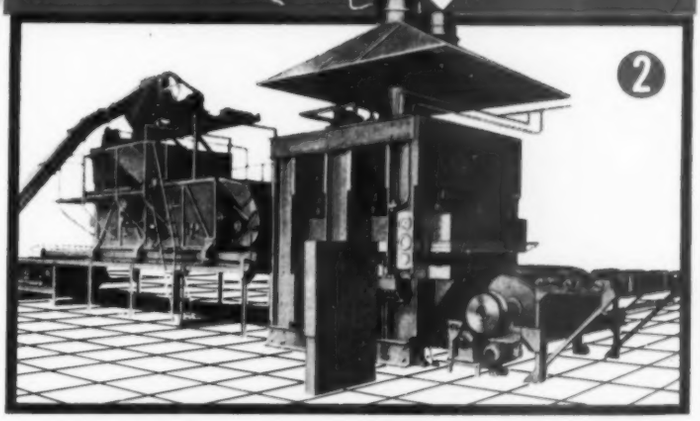

NOW MADE IN NORTH AMERICA!

The World's Finest FLAKEBOARD

BISON BOARD — long recognized as the world's finest flakeboard — is now being made from planing mill shavings, cut-offs, scraps, and round wood in these three North American plants. All are producing finest quality ¾" board, meeting strict industry specifications.

The Bison System offers semi-automatic operation in single or multiple-opening press, with low installation, maintenance and operating cost. Call, wire or write for complete details.

1. WOOD FIBREBOARD CO., Albany, Oregon
Using planing mill shavings and cutoffs, producing 4' x 16' and 5' x 16' panels in a multiple-opening press. Finished board meets strict TECO specifications. Production: 4500 sq. ft. per hour.

2. FLAKEBOARD CORPORATION, Milltown, N.B.
Using round wood, making 5' x 16' panels in single-opening press. Production: 1200 sq. ft. per hour.

3. TENN-FLAKE CORPORATION, Morristown, Tenn.
Using round wood, cutoffs and scrap, producing 5' x 20' panels, single-opening press. Production: 1500 sq. ft. per hour.

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IRREGULAR

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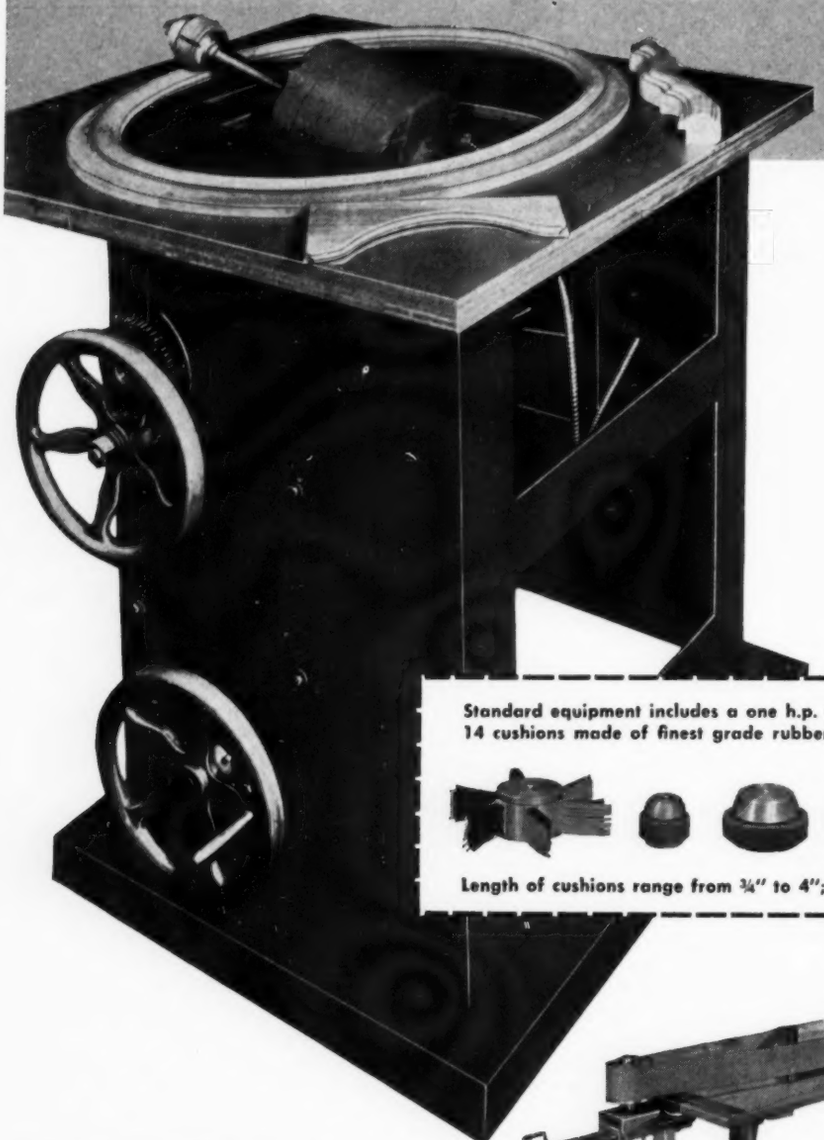


THE NEW

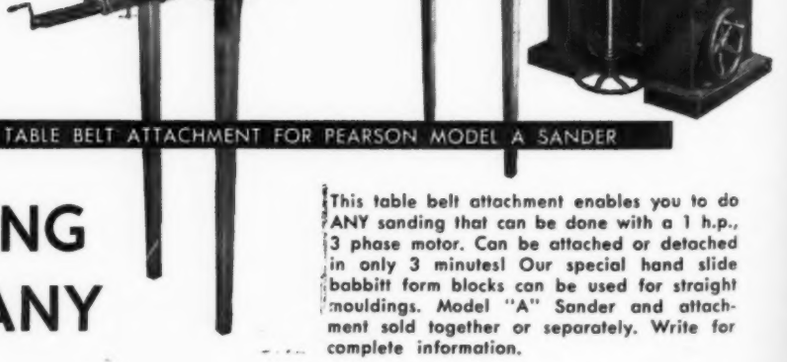
PEARSON Model "A"

SAVES 1 OR 2 OPERATIONS!

Will not disfigure details! Many plants report this efficient sander saves 60% to 80% on sandcloth! Sands one or more stepdowns at the same time; sands inside radii of circles and very flat tapered moulding. With the Pearson Belt Attachment, shown below, this model can be converted to an all-purpose sander at small cost!

Standard equipment includes a one h.p. dustproof motor and 7 metal heads and 14 cushions made of finest grade rubber—

Length of cushions range from ¾" to 4"; outside diameters, 3¼" to 7".



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WE SELL DIRECT!

This enables us to personally instruct your operator to get maximum efficiency from the machine.

This table belt attachment enables you to do ANY sanding that can be done with a 1 h.p., 3 phase motor. Can be attached or detached in only 3 minutes! Our special hand slide babbitt form blocks can be used for straight mouldings. Model "A" Sander and attachment sold together or separately. Write for complete information.

PEARSON SANDING MACHINE COMPANY

HIGH POINT, NORTH CAROLINA

We also manufacture the well-known Pearson Block & Edge Sander

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WOOD WORKING DIGEST

FOR MANAGEMENT MEN IN WOODWORKING

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COMING NEXT MONTH

Marriageability of Wood—using wood with other materials

Establishing a Maintenance Program

Plywood Production—International Paper Co.'s Expansion & Modernization, Weed, Calif.

"Compact, Well Organized Finishing Dept. Cuts Costs"

Rise & Fall of The Heel

"Take The Mystery out of Wood Finishing"

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Trends In The American Wood Industry 40
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"How We Work With Designers" 44
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The South Presents A Blueprint For Progress 56
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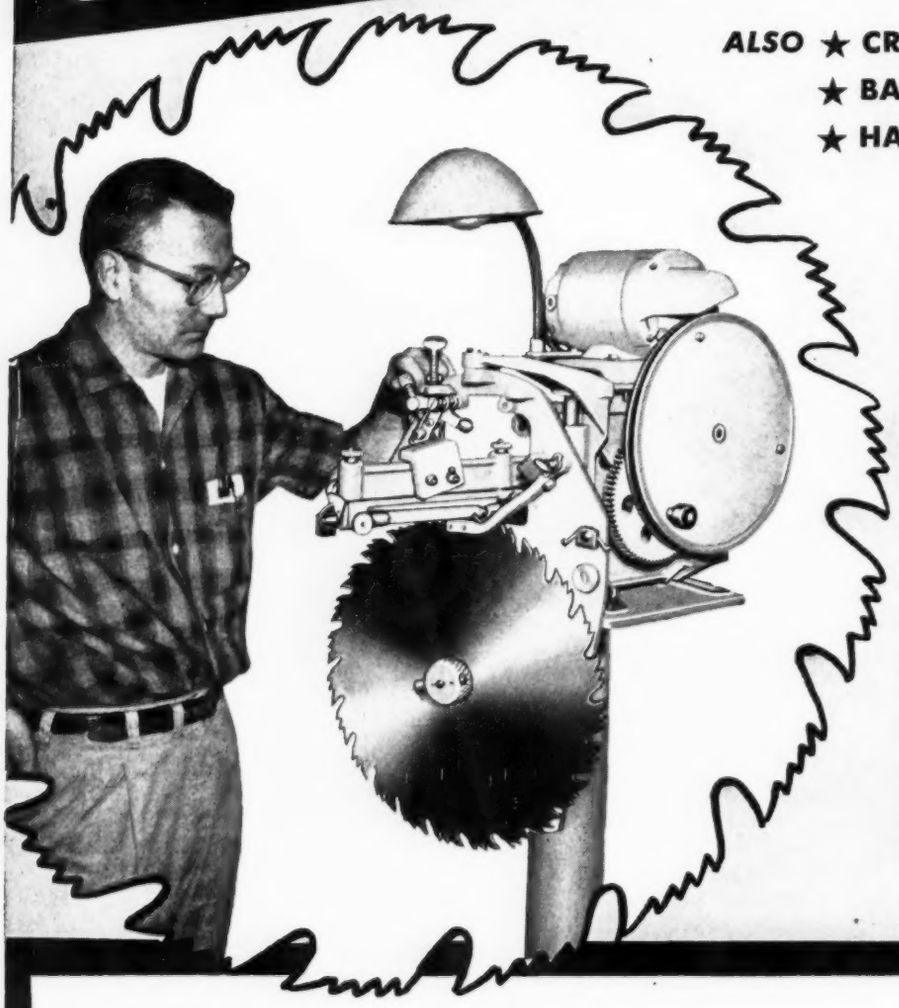

It's the new Model 200

FOLEY Automatic SAW FILER

THE NEW model 200 Foley Automatic Saw Filer is the *first* and *only* machine which will file the so-called "combination" (rip and crosscut) circular saws; also crosscut circular saws, band saws, all types of hand saws.

After years of research and testing, Foley has "jumped the gullet" in filing combination saws with a simple yet ingenious feed mechanism which feeds *an entire segment* at a time. Thus, the first tooth in each segment of a combination saw is sharpened clear around the saw; then the second tooth in each segment, and so on, until the saw is finished. The feed mechanism is also easily adjusted to feed from tooth to tooth for all other saws, as fine as 16 points per inch.

The exclusive Foley principle of jointing the saw as it is filed, keeps all teeth uniform in size, shape and spacing; it also keeps circular saws perfectly round. This assures a fast, smooth, true cutting saw that stays sharp longer, runs cooler, and frequently doubles the life of the saw.

30-DAY TRIAL OFFER

You may try the new Model 200 Foley Saw Filer in your own shop for 30 days. See for yourself its precision work, advanced design and quality construction—time-proved through more than 50 years, manufacture and use of previous models. Write for literature and details of 30-day trial offer.

FOLEY MANUFACTURING COMPANY
3351 N. E. 5th St., Minneapolis 18, Minn.

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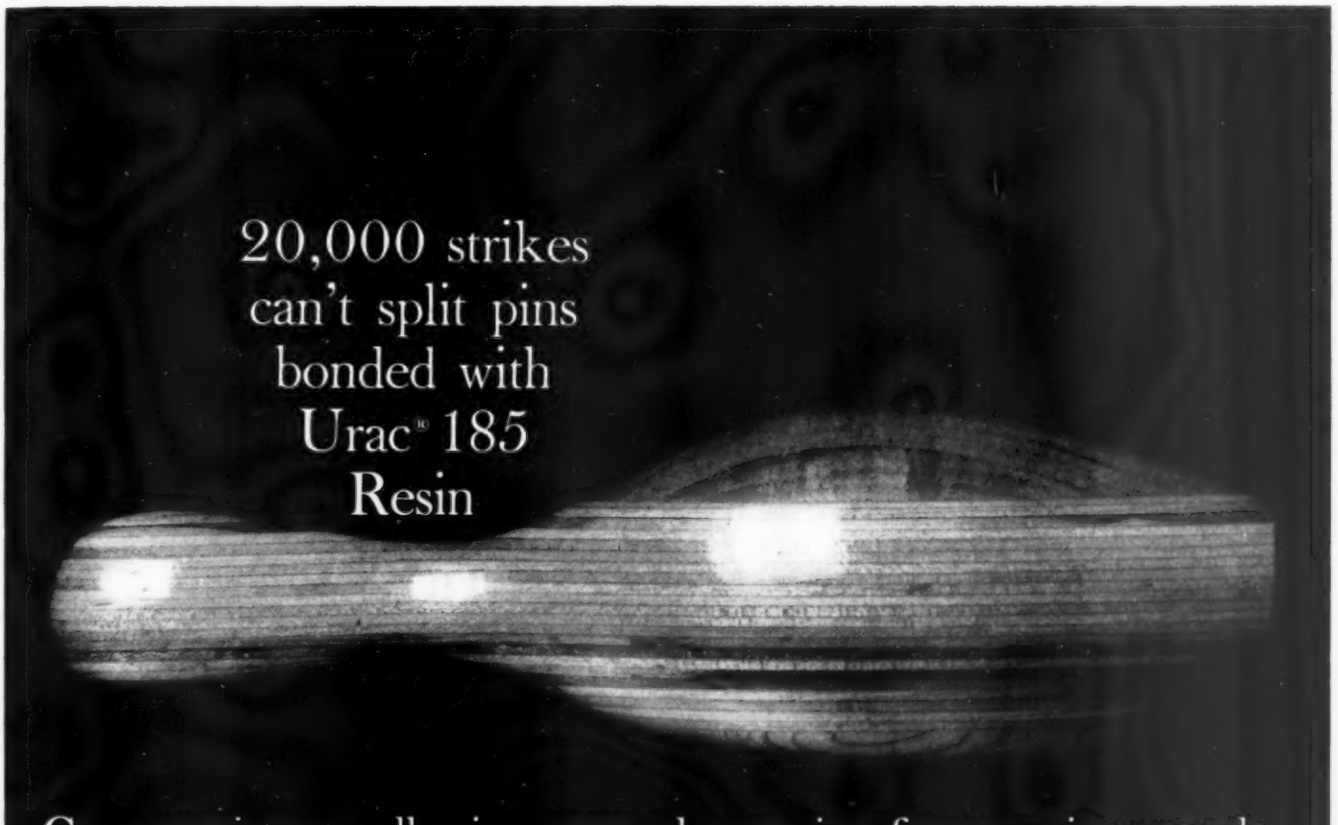

Craze-resistant adhesive proved superior for sporting goods, furniture, decorative laminates. For assembly or secondary gluing operations, Urac 185 urea-formaldehyde adhesive makes one of the strongest joints possible, with very high moisture resistance. Delamination caused by a faulty glue line is unheard of. In fact, tests show the wood deteriorates before the bond. Urac 185 is gap-filling—an ideal resin for wooden structures where a thin glue line is not possible because of inadequate pressure or irregular contacting surfaces. It sets at room temperature under low pressure ...can also be hot-pressed or used with electronic bonding devices. Write for information about Urac 185, the adhesive for furniture, sporting goods, millwork, joint assemblies and decorative laminates for dinette, sink or counter tops.

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Wallingford, Connecticut. Offices in: Boston • Charlotte • Chicago • Cincinnati • Cleveland • Dallas • Detroit • Los Angeles • Minneapolis • New York • Oakland • Philadelphia • St. Louis • Seattle • In Canada: CYANAMID OF CANADA LIMITED, Montreal • Toronto

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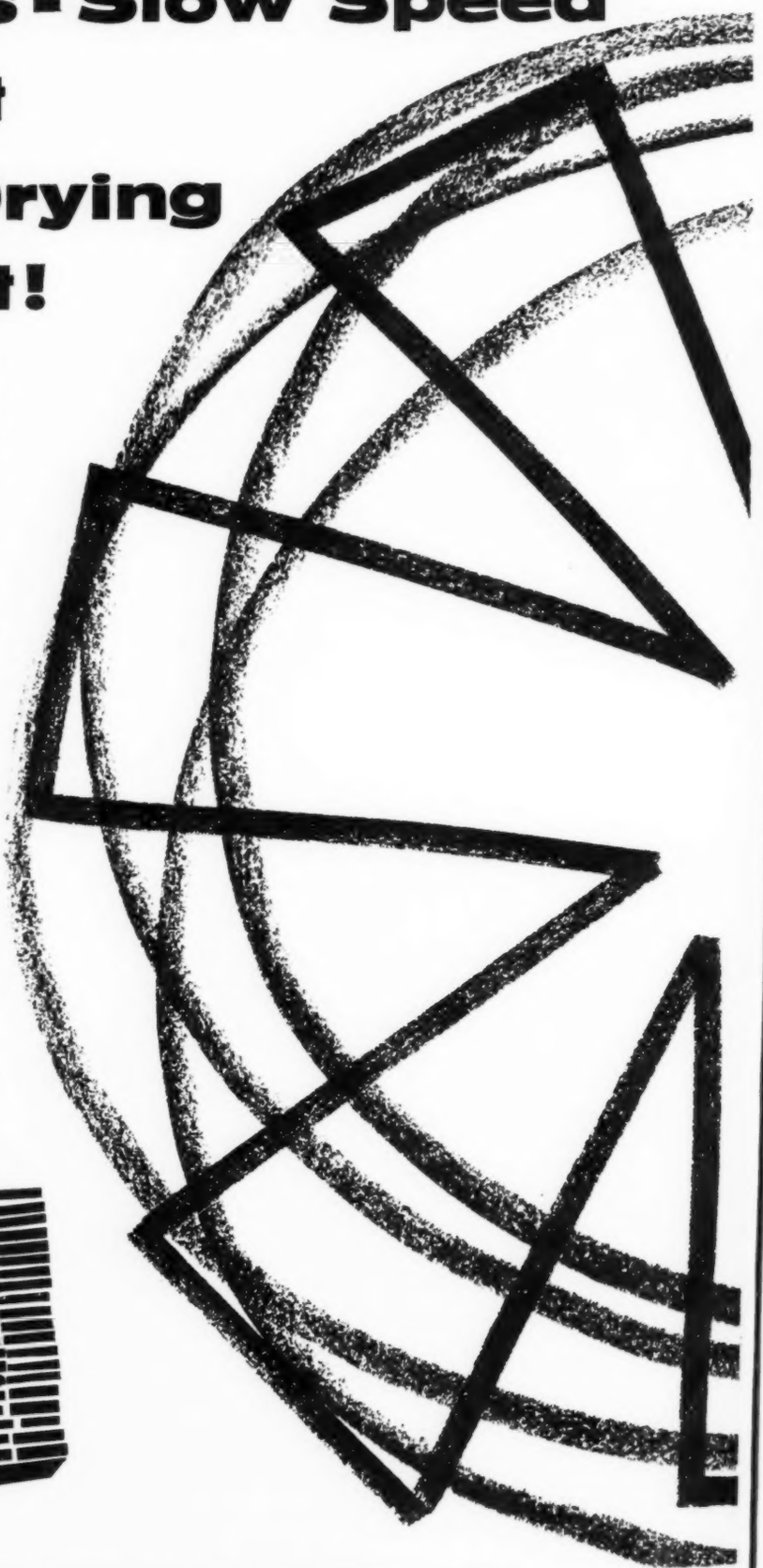
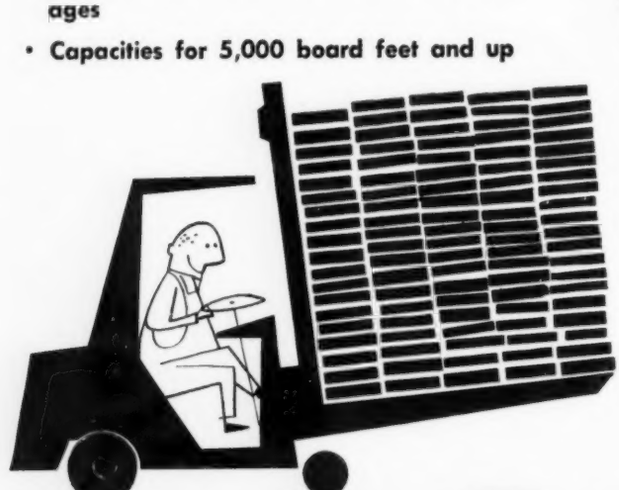
Large Fans - Slow Speed One Result The Best Drying System Yet!



The results speak for themselves. The Moore Forced Air Dryer delivers a more uniform flow of air through each sticker course. The reason for this controlled uniform circulation is simple . . . large fans turning at a slow speed produce more air at a lower cost. This superior fan system can be found only in the Moore Forced Air Dryer . . . a proven yet low-cost drying system for seasoning Softwoods and Hardwoods to air-dry moisture content.

Here are just a few of the advantages which can be gained by using a dependable Moore Forced Air Dryer:

- **Drys faster than yard drying**
- **Reduces degrade—produces brighter, flatter lumber**
- **Turns inventory faster—increases kiln capacity—reduces yard inventory**
- **Eliminates weather extremes experienced in yard drying**
- **Low building and equipment costs**
- **Designed for loads on rails or unit packages**
- **Capacities for 5,000 board feet and up**



MOORE DRY KILN COMPANY

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De Marco Cabinet Plant Under Construction

Construction of De Marco Cabinet Mfg. Co. new 4½ acre plant in Gardena, Calif. is now under way with completion scheduled for late next February, according to Phillip A. DeMarco, firm president. The new plant, located at 157th and Main Streets, will be a single-level contemporary structure containing an area of more than 50,000 square feet. It will house the firm's administrative, production, design and warehousing facilities.

Construction features include tilt-up concrete walls as well as decorative stone above the main entrance. Interior features include year-round heating and air conditioning in the administrative offices, a special saw-tooth skylight illumination which provides glare-free day lighting in the production areas, and fire preventive water sprinklers.

Increased sales volume and expansion of its product line necessitated the company's move at this time, DeMarco said. The new plant, its third quarters since starting in 1937, will establish DeMarco as the most modern and one of the largest kitchen cabinet manufacturers in the west.

Hitchcock Award Judges Work Out Procedures

Procedures for judging the winner of the 1961 Hitchcock Award were worked out by the five judges of the contest at an early-March meeting in Washington, D.C.

The award is to be presented as recognition for outstanding individual research and/or career accomplishment as the professional and/or industrial level. Sponsors of the contest are the Forest Products Research Society and the Hitchcock Publishing Company, publishers of Hitchcock's Wood Working Digest.

According to Clarence A. Pearson, editor of Wood Working Digest, Hitchcock will give annually $500 to the FPRS. The money will be used as an Honorarium for the award purpose. The full $500 may be granted to the award winner in 1961, or part of it may be carried over and used accumulatively in succeeding years.

The 1961 cash prize and an award certificate will be presented to the winner at the 1961 Annual Meeting of the FPRS at the Kentucky Hotel in Louisville, Ky., June 18-22.

All members of the FPRS and of the wood products industry are invited to submit names of individuals to be considered by the judges for the award. All entries should be submitted in duplicate to the Executive Secretary of the Forest Products Research Society, 417 N. Walnut St., Madison 5, Wis. An entry must be received by the judges by May 1 to be eligible for the 1961 award.

Entries should be approximately 300 words in length, and should not exceed 350 words. They should include name and address of the person submitting the entry, name and address of the proposed candidate, his occupation or employment, a review of the nature of the individual's work, purpose, accomplishments, and results. Entries may be documented with supporting material.

Contest judges are: Dr. E. S. Harrar, Dr. Eric Anderson, Mr. Dale Chapman, Mr. Ralph Bescher, and Mr. James Byrne.

Jordan-National Company Formed

National Starch and Chemical Corporation has joined forces with Jordan Chemical Works (A'sia) Pty. Ltd., Sydney, Australia. Frank Greenwall, Chairman of the Board of National, recently announced the formation of a new company Jordan-National Co. Pty. Ltd. mutually owned by National and Jordan.

Jordan-National will manufacture and sell vinyl polymers and various adhesives made in the United States by National. Manufacturing facilities and executive offices will be located in Sydney. Max Glaser, Managing Director of Jordan Chemical Works, will also serve in a similar capacity for the new concern.

1961 Design Engineering Exposition and Conference—May 22-25

The Design Engineering Exposition and Conference is scheduled to be held this year in Detroit's newly-opened Cobo Hall, May 22-25.

The Machine Design Division of the American Society of Mechanical Engineers will sponsor the conference for the sixth consecutive year, and the show will be the largest in its history, with more than 400 companies exhibiting.

Both the Exposition and Conference will be devoted to the Research and Development aspects of new products of all types. Materials and components for manufactured products ranging

continued

from household items to space ships will be shown.

On the succeeding three days of the conference, specific design problems will be considered. Two related papers will be presented at each of the sessions.

In addition to the panel, other topics selected include: Designing for Greater Production, Cost Reduction Through Standardization, Types of Adhesives and Their Application, and The Design of Adhesive Joints. These are but a few of the long list of varied topics selected.

Show hours will be from noon to 5:30 P.M. daily except on Tuesday May 23, when it will remain open until 10 P.M.

Rapid registration cards, conference programs or information concerning hotels may be obtained by writing to the exposition management firm, Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N.Y.

WAPAK PLANER KNIFE

ROCKWELL TEST—Every WAPAK planer knife is Rockwell tested to assure perfect balance in hardness.

WEIGHT TEST—Each pair of planer knives is balanced by weight on Shadograph scale.

HARDNESS AND WEIGHT BALANCED

Perfectly matched pairs are balanced both in weight and hardness . . . marked for easy identification and duplication. You obtain maximum production with minimum knife costs . . . Specify WAPAK Thin Planer Knives for rugged durability, even wear and smoothest surfacing.

THE WAPAKONETA MACHINE CO., Wapakoneta 1, Ohio
Export Div. 30 Church St., New York 17, N.Y.
Knives Engineered for the Job Since 1891

TRADE MARK

also manufacturers of VENEER KNIVES SHAPER STEEL DOWEL and THICK SLOTTED KNIVES CHIPPER KNIVES CORRUGATED BACK KNIVES HOG KNIVES POLE KNIVES PAPER KNIVES

Use postpaid card. Circle No. 210

WCLA Broadens 1961 Ad Campaign

West Coast Lumbermen's Association will devote the bulk of its 1961 advertising budget to trade publications in the coming year. In addition to the more than $300,000 slated for advertising in architectural, builder, retailer and farm publications an additional $120,000 is scheduled for promotion literature and $28,000 for exhibits and motion pictures. Full-page, four color ads will be placed in major shelter book annuals.

The campaign for retail lumber dealers involves several insertions in major national and regional retail trade publications, featuring the 1961 theme of "Trendselling for Profit." A series of retailer ads relates actual profit-making experiences of prominent retailers throughout the country, who have built virtually their entire business selling utility grade West Coast lumber. As this material appears newspaper mats and other tie-in material will be offered individual dealers.

Architectural advertising makes use of full color, double-spread inserts, picturing outstanding structures built with West Coast Douglas Fir, West Coast Hemlock, Western Red Cedar, Sitka Spruce or White Fir. Copy will relate how West Coast lumber was used to successfully achieve a specific design objective. Farm magazines and building code publications will also carry WCLA ads, reaching still other markets and rounding out the total campaign.

Rockwell Acquisition of Porter-Cable Approved

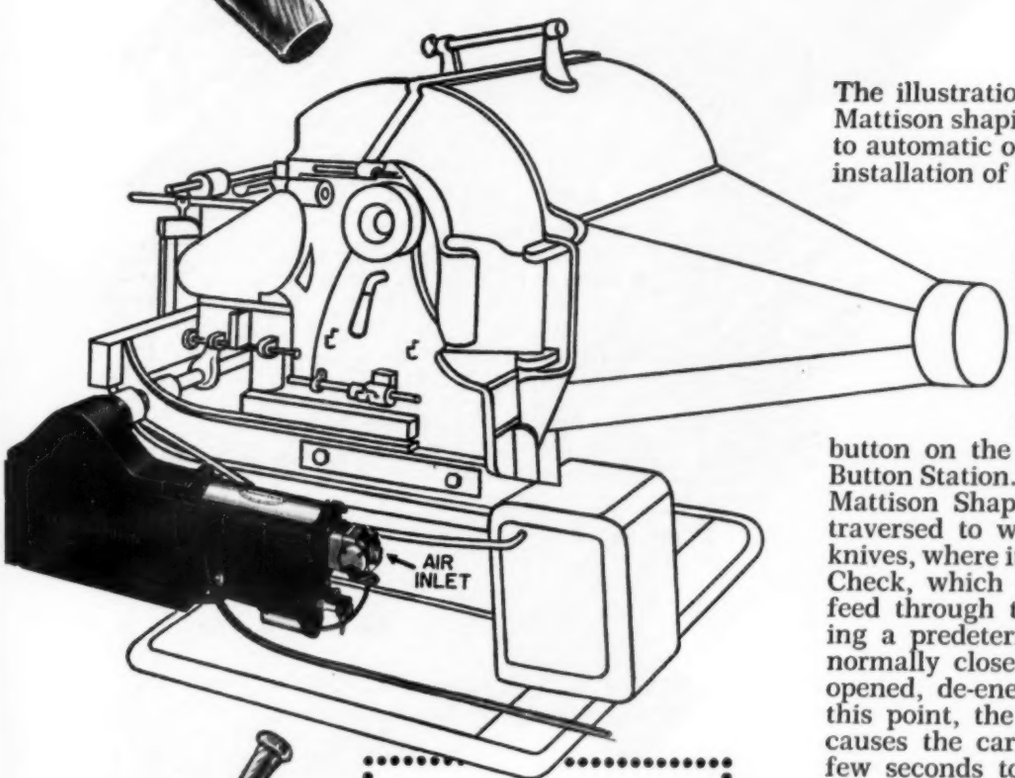
An agreement by Rockwell Mfg. Co. of Pittsburgh, Pa., to acquire the assets of the Porter-Cable Machine Company was recently completed, following approval of the Porter-Cable stockholders.

Porter-Cable is a pioneer and one of the nation's leading manufacturers of portable electric power tools, including saws, sanders, drills, routers, planes and many others. Rockwell is known for its complete line of stationary power tools for industry, schools and the home workshop.

Porter-Cable will operate as a wholly owned subsidiary of Rockwell, and the present management of Porter-Cable is unchanged with Robert C. Tvo continuing as president.

The Rockwell Manufacturing Company operates 22 plants in the United States and three in foreign countries. In all, they produce product lines in three product categories: measuring and registering devices, control equipment, and stationary power tools.

How to get more production from Standard WOOD TURNING EQUIPMENT



The illustration shows a standard Mattison shaping lathe converted to automatic operation by the installation of a Bellows Air Motor, Hydro-Check and time control. Production gains reported by manufacturers who have made the conversion range up to 116%.

The operator loads the wood blank in the chuck and presses the "start" button on the Start and Stop Push Button Station. The carriage of the Mattison Shaping Lathe is rapid traversed to within ⅛" of the cutter knives, where it picks up the Hydro-Check, which accurately controls the feed through the knives. Upon reaching a predetermined depth, a normally closed Micro-Switch is opened, de-energizing both relays. At this point, the pneumatic timed relay causes the carriage to pause a few seconds to let the cutters "clean up the work" before returning to the starting position. In an emergency, depressing the "stop" button will make the carriage return to the starting position and stop.

Not only is production materially increased, life of cutter knives is lengthened, operator fatigue is substantially lessened.

May we send you details:

B73-C

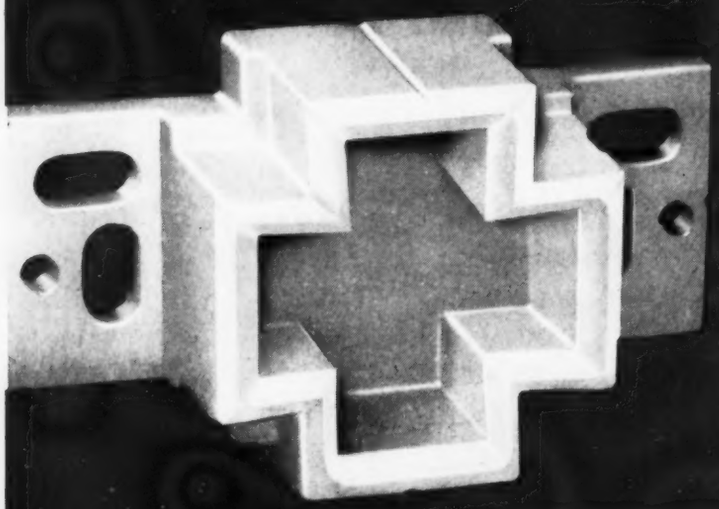
Wiring diagrams and full data on how you can make this cost saving conversion are available on request. Write Dept. WD-461. Ask for Bulletin BLF-10. Bellows-Valvair, Akron 9, Ohio.

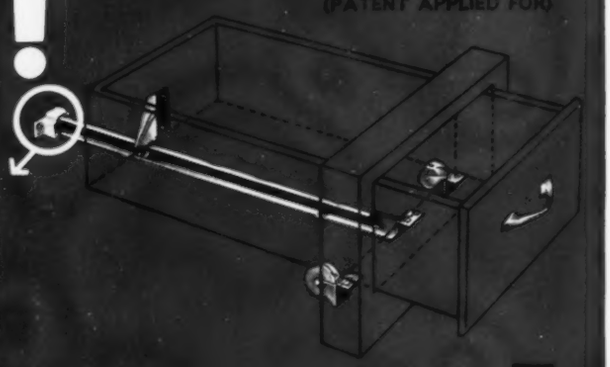
Bellows-Valvair
AKRON 9, OHIO
DIVISION OF INTERNATIONAL BASIC ECONOMY CORPORATION (IBEC)

In Canada: Bellows-Valvair, Ltd., Toronto 18, Ontario
Bellows-Valvair Corp. of California, Glendale 1, California

Use postpaid card. Circle No. 211

new!

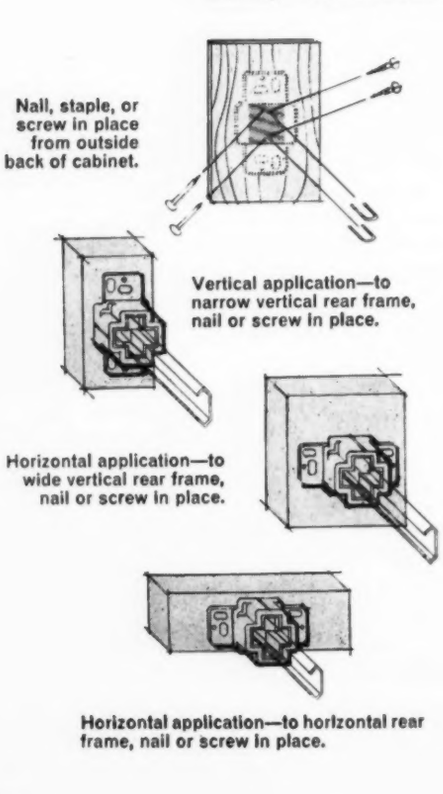




new!

TRI-ROLLER DRAWER SLIDE BY AMEROCK

DURABLE, LINEAR-POLYETHYLENE PLASTIC BRACKET PROVIDES EXTRA SOUND-CUSHIONING THAT ELIMINATES CHATTER


Nail, staple, or screw in place from outside back of cabinet.
Vertical application—to narrow vertical rear frame, nail or screw in place.
Horizontal application—to wide vertical rear frame, nail or screw in place.
Horizontal application—to horizontal rear frame, nail or screw in place.

supports up to 50 lbs.

REINFORCED FRONT ROLLER BRACKETS provide extra strength and durability. Can be nailed or screwed into place.

EXTRA-LARGE FRONT ROLLERS for more bearing surface. All rollers of high-impact, nonsetting nylon for long life and silent operation.

ONE-PIECE TRACK with front mounting bracket welded to track for quick installation and greater strength. Track occupies unused space between drawers. Track can be mounted above drawer where necessary.

EASY TO INSTALL—no measuring or leveling needed to apply track and plastic end bracket.

AUTOMATIC STOP is integral part of track. Drawer tips to just 6° for insertion or removal.

GOLDEN CHROMATE FINISH over heavy zinc plating for high rust resistance and built-in lubrication.

AVAILABLE IN 5 STANDARD SIZES—18″, 20″, 22″, 22¾″, and 24″.

Amerock CORPORATION · Industrial Sales Division
Rockford, Illinois; Dept. HW41
In Canada - Meaford, Ontario

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Hammond Wins Design Oscar

Hammond Organ Company placed first in the Organ Class in the Mahogany Association's recent Furniture Design Award competition. The first place "oscar," an obelisk, executed in Mahogany, was presented jointly to H. C. Lembke, Hammond vice president for marketing, and company designer, Nels A. Miller, (center and right), by Teel Williams, executive director, Mahogany Association, Inc., at the Association's Evening of Awards.

New self-contained console organs shown by Hammond in genuine Mahogany cabinetry included contemporary furniture design in a brown finish, as being shown now in the company's exhibit space in the National Design Center, New York City.

Walnut Has Role In New Rifle

The recent dedication of a production line for the Army's new M14 Springfield rifle in New Haven, Conn., recalled to wood industry observers the vital role which American Walnut plays in the manufacture of firearms. The stocks of the M14 are Walnut as are those of practically all of today's military rifles, as well as sportsmen's rifles and shotguns. The M14, according to the manufacturer, replaces not only the Garand, but also the M2 Carbine, the Browning automatic rifle and the M3A submachine gun.

Production facilities consist of more than 600 machines. Included in the gunstock woodworking line is a unique machine which automatically performs 16 different cutting operations.

"Walnut has long been preferred for gunstocks," said George C. Romeiser, secretary-manager of the American Walnut Manufacturers' Association. Commenting further he added, "Early in the evolution of firearms the gunsmiths of Europe realized the necessity of employing for gunstocks a wood having superior physical and mechanical properties. Strength, stability, hardness, toughness, light weight in proportion to strength, and shock-resisting ability were essential then just as they are today.

"Because solid Walnut proved to have these qualities to a greater degree than any other wood, it rapidly became the preferred species for this purpose. In addition, its beauty was also an important factor. Only Walnut satisfied the desire for a handsome gunstock wood."

America is fortunate in possessing an adequate supply of Walnut to meet military needs and still fill the civilian demand for Walnut in furniture, wall paneling and other products.

"The TAYLOR PANEL-FLOS are... excellent investments," The White Furniture Company reports

The second TAYLOR PANEL-FLO edge gluer to be installed at the White Furniture Company where 50% of the gluing is hardwood face stock.

Mr. Phonse Bean, General Superintendent of White Furniture Company, Mebane, N. C., reports "After operating a PANEL-FLO for many years we decided to buy a larger machine to take care of our increased production. We are well satisfied with the new PANEL-FLO and consider it an excellent investment!"

Manufacturers of quality furniture, like White, are pleased with the PANEL-FLO because it produces flawless glued joints in exposed hardwood at a minimum of labor and operating costs. Also upkeep and maintenance expense is practically non-existent.

See a Taylor edge gluing machine in operation and observe the obvious savings being made by "PANEL-FLO" users.

* Reg. U. S. Pat. Office

FREE BOOKLET: Write today for your copy of "The Taylor Panel-Flo Continuous Edge Gluing Machine," a booklet which explains the engineering advancements accompanying this new, revolutionary method of Continuous Edge Gluing.

James L. Taylor Mfg. Co.
Edge Gluing Specialists Since 1900
116 PARKER AVE., POUGHKEEPSIE, N. Y.

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16,000

Finished Pieces Per Day

Mereen-Johnson Double End Tenoner is used in the Valu-Line Furniture Plant to miter and tenon pieces for their "Styline" furniture.

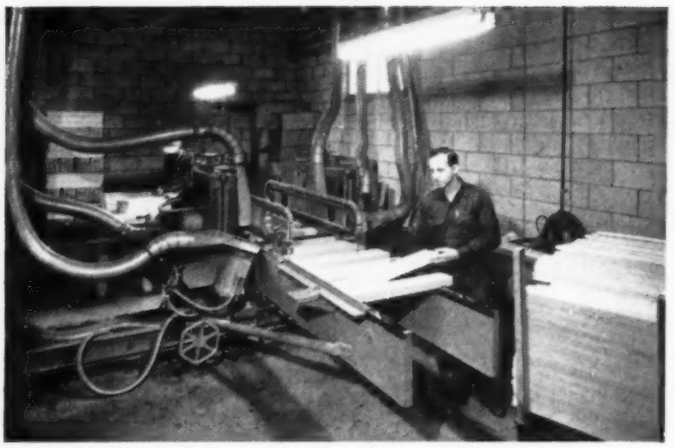
"There is absolutely no question that the M-J Double End Tenoner is the primary all-round machine in our operation," says Mr. Hilgeman, head of the dimensions division of the Valu-Line Furniture Plant, Huntingburg, Indiana. "It was virtually mandatory that we automate and modernize our furniture parts fabrication methods as much as we could. The Double End Tenoner makes a large variety of cuts automatically, performing the combined work of four or five less versatile machines."

Valu-Line, a subsidiary of Du Crafts, provides dimension stock and pre-finished panels for three sister plants in the organization. These finished pieces for occasional tables, bookcases and record cabinets are marketed under the "Styline" trade name.

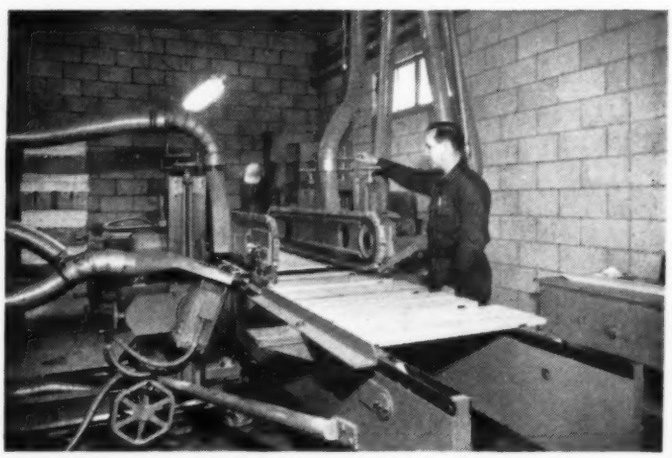
Planning the new production line to make the best use of plant space included two major objectives, both of which led to the choice of a Mereen-Johnson Double End Tenoner. The number of machines was cut down, and the in-plant storage problem eliminated.

Dimensions as close as 1/64 inch are readily and reliably obtained. Precision of the M-J Double End Tenoner has been so good that in Mr. Hilgeman's words, "We have never had a single discrepancy. The Double End Tenoner gives us the precise uniformity we must have and enables us to maintain optimum output to keep the other plants functioning."

"The M-J Double End Tenoner had enabled us to maintain optimum levels of production. It has given us perfect dimensional accuracy for the millions of board feet of lumber processed. Actually, the machine has paid for itself in one year!"



Lumber placed on feed



Setting controls

Binding finished pieces

For complete tenoning and mitering information, write to Mereen-Johnson on your company letterhead, describing your application.

MEREEN-JOHNSON MACHINE COMPANY
4401 LYNDALE AVENUE NORTH
MINNEAPOLIS 12, MINNESOTA

CUT-OFF SAWS • DOUBLE CUT-OFF SAWS • MULTIPLE CUT-OFF SAWS • TENONERS
GANG RIP SAWS • VENEER & PLYWOOD SIZERS & JOINTERS • RESAWS

The Editor's Page

What Is The Key To Success?

Today, as we look at the immediate and future prospects of the woodworking industry, we realize there are many factors to be considered if more products are to be sold at a profit. In order to have a sound basis of operation what single factor should an alert management consider as most important? Let's consider a few of the most commonly thought of items usually connected with a profitable operation and see how they fare.

First and foremost in everyone's mind is automation and the modernization of production facilities. Actually, while these are very important items, standing by themselves they fall considerably short of solving the problem. The ability to produce a product at an increased rate does not in itself mean a sales and profit utopia. This is true even though quality may be improved.

Next let's consider improvements in the selling picture with a bigger and better sales force, backed by more effective promotion efforts—to many this is the solution to the problem of moving more goods at a profit. However, as we sit back and reflect on this point it loses its promised pot-of-sales-gold.

What do these two seemingly important points—usually related to lower costs, increased sales and greater profits—lack that prevents them from being the most important item management must consider if a business or industry is to grow and prosper? They lack the one important ingredient needed for success—a salable product that fills a need in the market place.

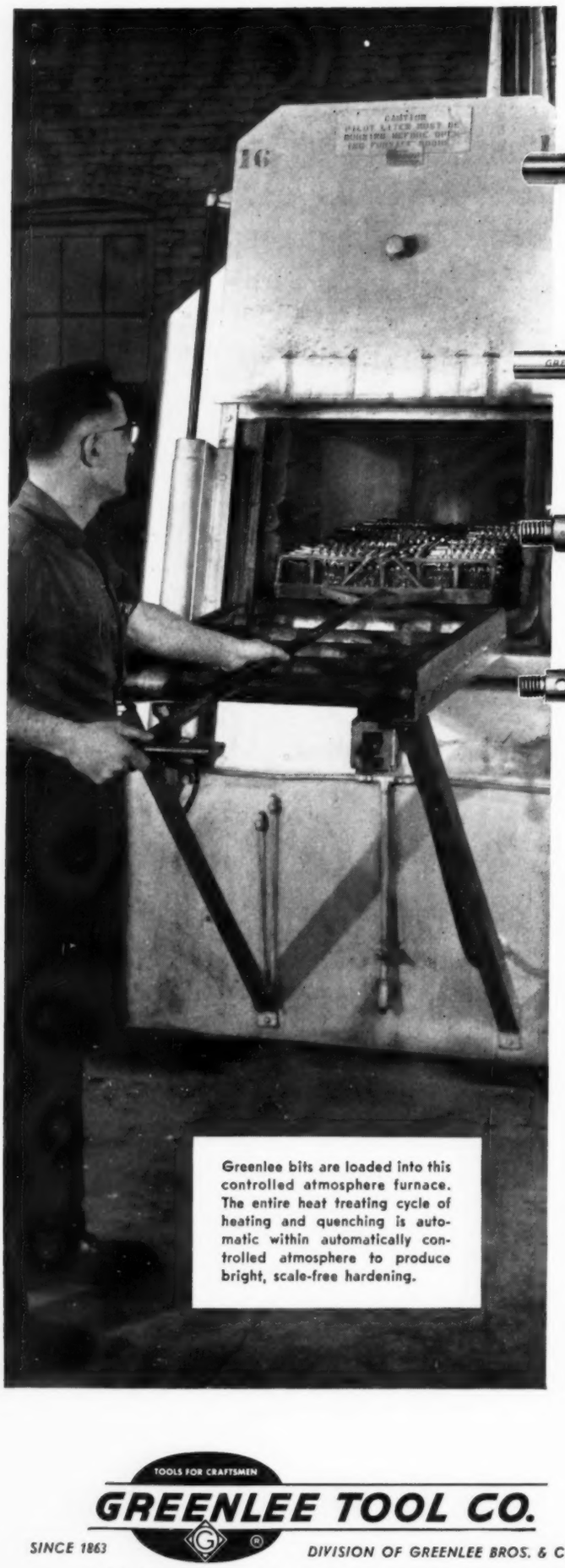
While the need for increased production facilities and improved sales and promotion efforts can not be denied, the key to success is *product planning*. The reason for this is that only through *product planning* can a business be assured of a continuous flow of salable products.

Look back and note the companies who have failed or couldn't seem to move ahead even with production and sales in their favor and ask yourself why? The answer is obvious—they lacked the right product at the right time because they did not provide for this need through *product planning* with a searching look at the future.

Since today's market demands are constantly and rapidly changing the successful company must create new products and update existing ones to meet every condition. As still greater competition looms ahead the wood industry cannot afford to be caught short with its product lines at the *status quo*. Alert management will conquer the future by setting up a *product planning program* today that looks ahead and provides the products to meet tomorrows needs.

Clarence A. Pearson

Editor



Greenlee bits are loaded into this controlled atmosphere furnace. The entire heat treating cycle of heating and quenching is automatic within automatically controlled atmosphere to produce bright, scale-free hardening.

GREENLEE TOOLS

cut better... last longer...

due to superior

heat treating

Greenlee Tools have a reputation for unexcelled quality. They are heat treated on the equipment shown here . . . as modern as you will find anywhere. This permits finishing the tools to closer tolerances before hardening . . . prevents distortion . . . greatly prolongs tool life. Find out for yourself. Try them. Your Greenlee jobber will be glad to help you select the tools that meet your exact needs, or write Greenlee Tool Co., Rockford, Illinois to help solve difficult boring problems. Ask for your up-to-date 36M Catalog.

Other Greenlee Tools include:

- Woodworking Machine Bits
- Power and Hand Bits for Electricians and Plumbers
- Hand and Hydraulic Knockout Punches
- Hydraulic and Mechanical Pipe Benders
- Portable Hydraulic Power and Hand Pumps to 10,000 PSI

TOOLS FOR CRAFTSMEN

GREENLEE TOOL CO.

SINCE 1863 — DIVISION OF GREENLEE BROS. & CO.

1966 HERBERT AVE. ROCKFORD, ILLINOIS

TRANSFER MACHINES • SPECIAL MACHINES • SIX AND FOUR SPINDLE AUTOMATICS • DIE CASTING MACHINES • TRIM PRESSES • WOODWORKING MACHINES AND TOOLS

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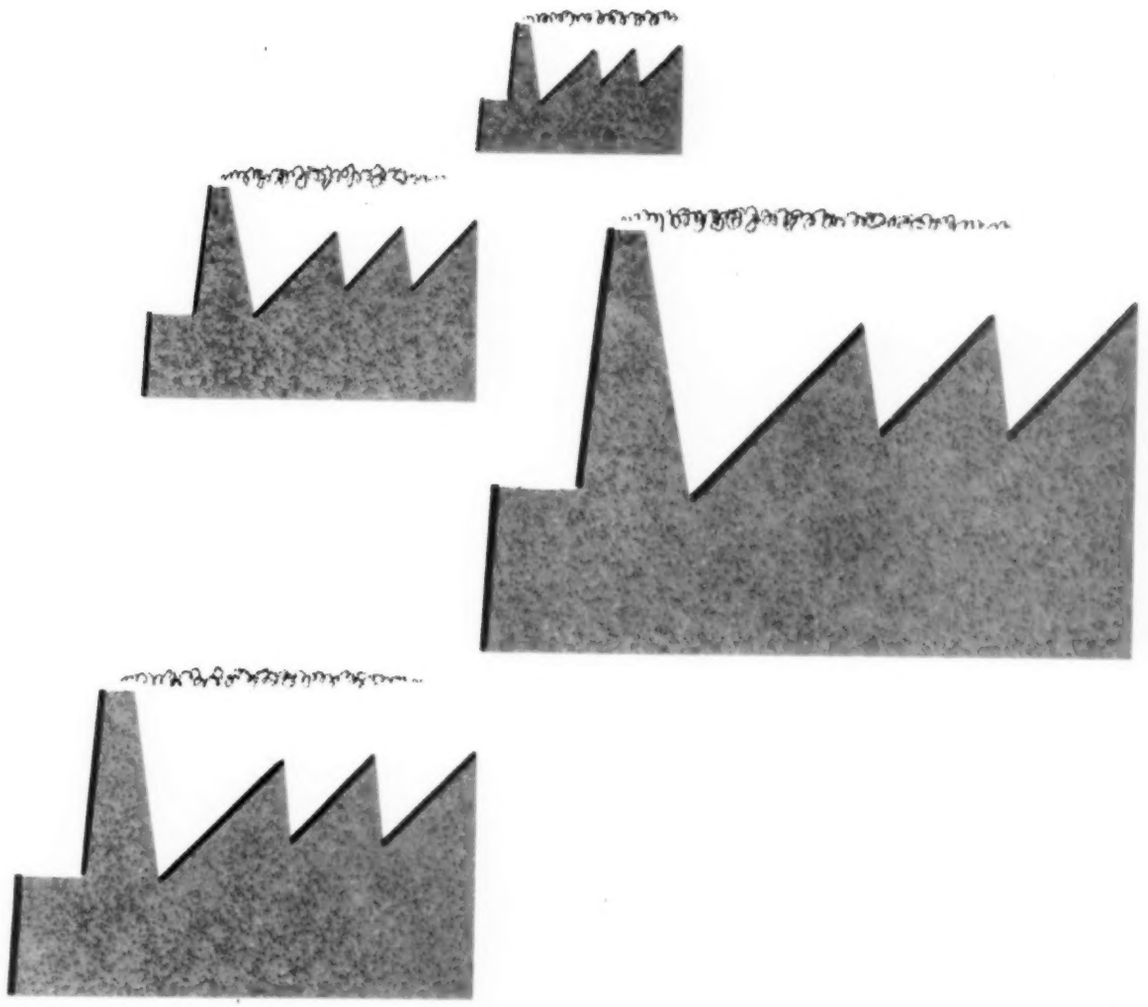


BOWATER BOARD

hard Board produced specifically for American industry

Bowater Board was planned and is being produced specifically to meet the requirements of American industry. It is creating new uses and new acceptance for hard Board in industry because of its distinct quality advantages. □ Bowater Board is made exclusively of selected hardwoods — the same woods used in fine furniture — and it is smooth on both sides because of the revolutionary Air Process method of manufacture. The Air Process also makes possible a wider range of products to meet your requirements. □ Backed by 30 years' experience of the international Bowater Organization, Bowater Board Company is the largest manufacturer of the hard Board on the East Coast — the only one to offer mass-produced Board with a smooth-on-both-sides finish. □ The important advantages of Bowater Board are changing manufacturers' opinions of hard Board. Let us work with you to determine practical, economical applications in items you manufacture.

BOWATER BOARD SMOOTH ON BOTH SIDES

BOWATER BOARD COMPANY • CATAWBA, S.C. • PHONE ROCK HILL, S.C. • AREA CODE 803, 328-0131 • A MEMBER OF THE BOWATER ORGANIZATION

Goodbye, Mr. Chips

. . . Here Comes

"NICKEL STEEL"

Yes sir, if you do bandsawing, you can let the chips fall where they may!

Now you can have more accuracy—greater safety—less maintenance—with "NICKEL STEEL" bandsaw blades. Brazed by the patented Swett Weld process, they're preferred by leading users everywhere.

The ultimate in design, these blades incorporate 2 positive rake-set-first features "The Skiptooth With the Rounded Gullet." Deep penetration and faster cutting are assured.

You'll see the difference immediately! "NICKEL STEEL" blades dig directly into the wood. You get free-falling chips that clear the machine with ease.

Remember, your work is judged by the blade company it keeps! You'll be time and money ahead—turn out better quality work—when you join the long list of wide-awake bandsaw manufacturers and users who insist on high quality "NICKEL STEEL" blades from Swett.

They're fully guaranteed. Keep a supply on hand at all times and you're sure to say, "Goodbye, Mr. Chips!"

Other "NICKEL STEEL" Products

Metal Cutting Bandsaws	
Tool Bits	Hole Saws
Compass Saws	Circular Saws
Scallop Edge	Knife Bands
Files	Flat Stock
Power and Hand Hacks	
Hacksaw Frames	

Distributor Inquiries Invited

FRANK W. SWETT and SON, INC.

Since 1871

1716 W. Adams St. Chicago 12, Ill.

Phone SEeley 3-4340

Letters to the Editor

If you are interested in helping any of these, please write the editor.

Interested In "Break With Tradition"

We have noted with interest your editorial "Break With Tradition," on page 15, in the February issue of WOOD WORKING Digest and we are writing to ask permission to quote from this article, either in full or in part, in one of our bulletins to our members.

We think the point you have brought out in regard to willingness to break with tradition, is excellent and we know our members will be very much interested.

S. E., MASSACHUSETTS

"Hats Off" To Author Glass

I have just read your story about the Wonders of Wood in the February, 1961 issue of WOOD WORKING Digest.

You can imagine my great delight in reading your account of the wonders of wood which is done in a warm and friendly way—really typical of wood.

G. R., ILLINOIS

Re: "Knowing Glues Will Reduce Costs"

This well written article is informative and of worthwhile interest to the woodworking fraternity as the subject deals with a continuous problem in the field, and the description of aliphatic resin glue is especially interesting as a possible application to an adhesive problem of ours.

Would you please send us the information as to where we may obtain samples of the above glue.

L. H., NEW YORK

This Is Our Reason For Being

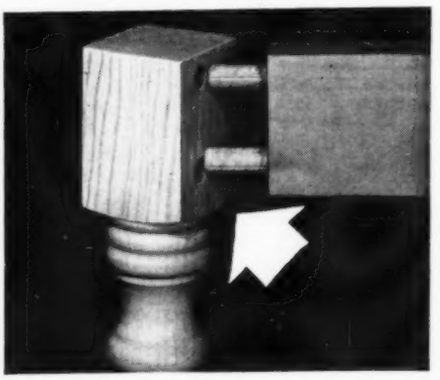
We read the WOOD WORKING Digest magazine and get *valuable information* on many subjects.

We would like to receive information on methods and experiences in sanding shaped edges of furniture tops, drawer fronts and mouldings.

We would appreciate anything you can do for us.

—C. C., CALIFORNIA

WHAT'S YOUR WOOD PROBLEM?



Having trouble with *inaccurate parts?*

Inaccurately-machined wood parts are never manufactured intentionally . . . but that's small comfort to the customer who receives them! There are five good reasons why the customers of Gamble Brothers aren't bothered with inaccurate machining — (1) utilization of fully-detailed drawings and specifications, (2) precision-built jigs and fixtures, (3) modern equipment, (4) experienced workmen, and (5) careful supervision and inspection.

This kind of manufacturing costs a little more — and maybe you don't need it. BUT if headache-free wood parts are worth a few cents more to you, you can benefit from Gamble's 65 years of wood-engineering experience. Write for facts, naming the improvements you'd like to make in your products.

Send for FREE booklet Illustrating GAMBLE services

This 28-page booklet describes Gamble facilities and services in detail. Includes many photographs of unusual products designed, tested and perfected by Gamble Brothers. Write for your copy today! Gamble Brothers, Inc., 4615 Allmond Avenue, Louisville 9, Ky.

GAMBLE BROTHERS

Incorporated

Louisville 9, Kentucky

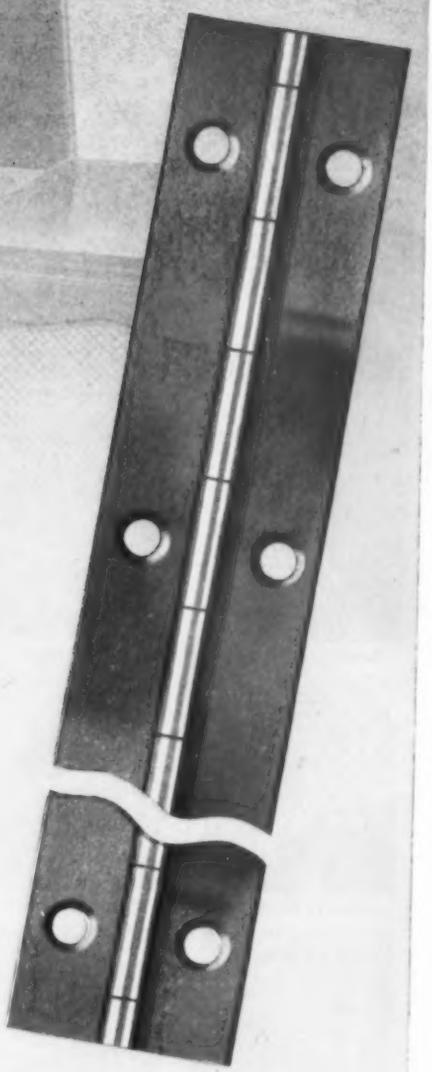
If the problem involves WOOD —GAMBLE can help!

← Use postpaid card. Circle No. 216

Use postpaid card. Circle No. 217

CONTINUOUS HINGES
by NATIONAL LOCK

The trend today in fine cabinets is to the trim good looks of continuous hinges. The added attributes of greater load bearing capacity, rigidity and lasting ease of operation make the trend a wise one. National Lock continuous hinges offer recognized quality, in a wide variety of styles, lengths and materials. Equal or unequal wings, parallel or staggered holes, swaging to meet your specs. Write today for free catalog.



NATIONAL LOCK

INDUSTRIAL HARDWARE DIVISION • NATIONAL LOCK COMPANY • ROCKFORD, ILLINOIS

INTERNATIONAL DIVISION 13 E. 40TH ST., NEW YORK, N. Y. • CABLE: ARLAB

PULLS • KNOBS • HINGES • SCREWS • BOLTS • PLASTICS • LOCKS • ALL FROM 1 SOURCE

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INTRODUCING YOUR ATLANTIC MAN

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Bobby Lee Parton

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1st in a series

Live, Work, Build Better with nima Wood

THE ATLANTIC LUMBER COMPANY

Headquarters for HARDWOODS

88 BROAD STREET, BOSTON 4, MASS. · 1055 SENECA STREET, BUFFALO, N.Y. · JOHNSTON BLDG., CHARLOTTE, N.C.

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Simonds means Savings whatever you cut

Take Simonds famed line of solid tooth, Red Center Saws — they cut wood fast and straight . . . they stay sharp, hold their corners . . . have longer overall life. Starting with its own special alloy steel and using its own heat treating techniques, Simonds develops a saw plate that stays flat, holds tension much longer than ordinary saws.

Add to this Simonds years of toothing, grinding and sharpening know-how and you're sure of the very best in quality and exactly the right type saw for your particular job.

Or, if you need the special, long-lasting qualities of Carbide Tipped saws, you can't beat Simonds. Made with an extra tough plate steel, Simonds features wear-resistant carbide tips that have identical clearance angles so that every tooth does its share of the work.

Whether you're cutting hardwood, softwood, plywood, hardboard, plastics or any composition materials, there's a Simonds Carbide-Tipped Saw just right for your needs.

Most sizes and types of both solid tooth and Carbide Tipped saws are available from stock at your local Simonds Distributor.

INDUSTRIAL DISTRIBUTORS SERVING INDUSTRY ECONOMICALLY THE RIGHT HAND OF PRODUCTION

SIMONDS SAW AND STEEL CO.

FITCHBURG, MASSACHUSETTS

Buy through your local Simonds Distributor for — Local Stocks – Local Speed – Local Skill

Factory Branches in Union, N. J., Chicago, Shreveport, La., Los Angeles, San Francisco, Portland, Ore. • Canadian Factory in Granby, Que. • Simonds Divisions: Simonds Steel Mill, Lockport, N. Y.; Heller Tool Co., Newcomerstown, Ohio; Simonds Abrasive Co., Philadelphia, Pa. and Arvida, Que., Can.

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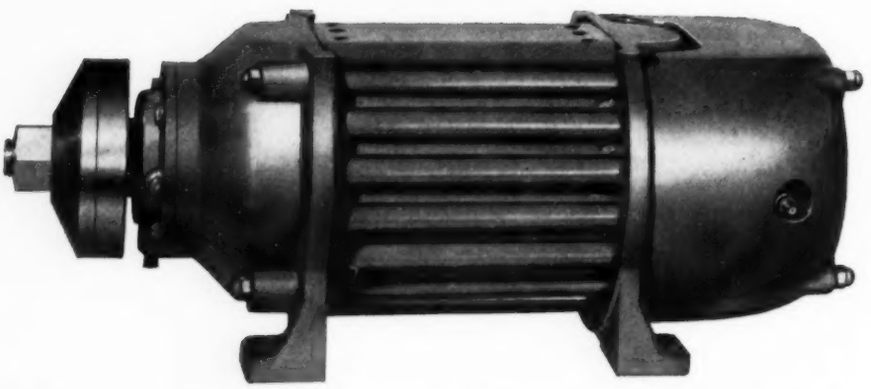
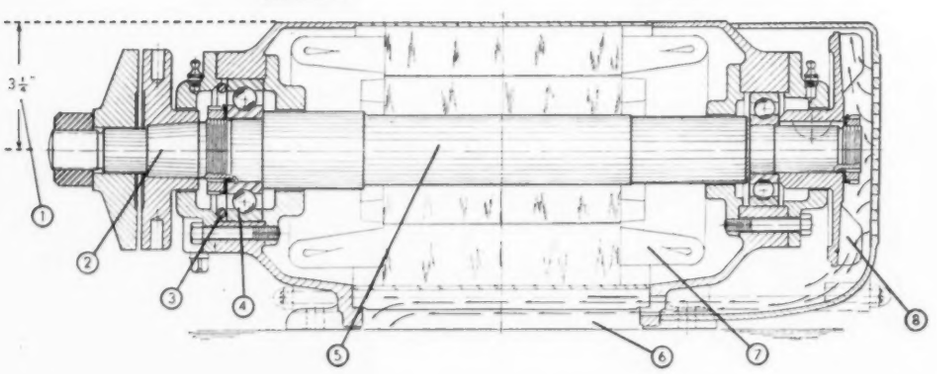
Serving the Industry Since 1852

POSITIVE POWER
With a WOODS MOTOR ARBOR®



TYPE L
Totally-Enclosed
Fan-Cooled
Dust-Proof



Full Tape Insulation

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How National Casein helped Cornwell Co. Inc. save $75 a day...and more!

Mechanized gluing operation; (1) framing members are mechanically fed through glue spreader, (2) framing members are then assembled on hardboard, (3) after assembly, panel lay-ups are placed on conveyor, (4) and (5) lay-ups are positioned in gluing press.

New glue additive eliminates the need for presanding tempered hardboard before gluing

In the manufacture of TV and Hi-Fi cabinets, Cornwell Company Inc. of Paoli, Indiana must glue tempered hardboard to wood frames. Because the glue can not get a good "bite" through the glazed surface, the hardboard had to be presanded before gluing, an operation that was both costly and time-consuming. On humid days, additional press time had to be allowed to secure adequate bond.

To improve this process, Bob Allen, the National Casein glue man who calls on Cornwell, huddled with the company's production team. As result, National Casein developed LG-40, an additive for mixing with their No. 30 Casein glue to provide an excellent bond without presanding the hardboard. Moreover, only a 45-60 minute press time was now required, even on humid days, a development that facilitated higher production speeds.

The savings to the Cornwell Co. are many. By eliminating presanding, the firm saves $75 and six man-hours per day in sanding costs. In addition, they save approximately $200 a month in glue costs.

By eliminating presanding, plus mechanizing their gluing operation (see below) the Cornwell Co. has increased production 11% to 2400 hardboard panels a day . . . yet has reduced labor costs 50%.

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Set of four colorful 10" x 13" wall posters to help woodworkers achieve better gluing results.

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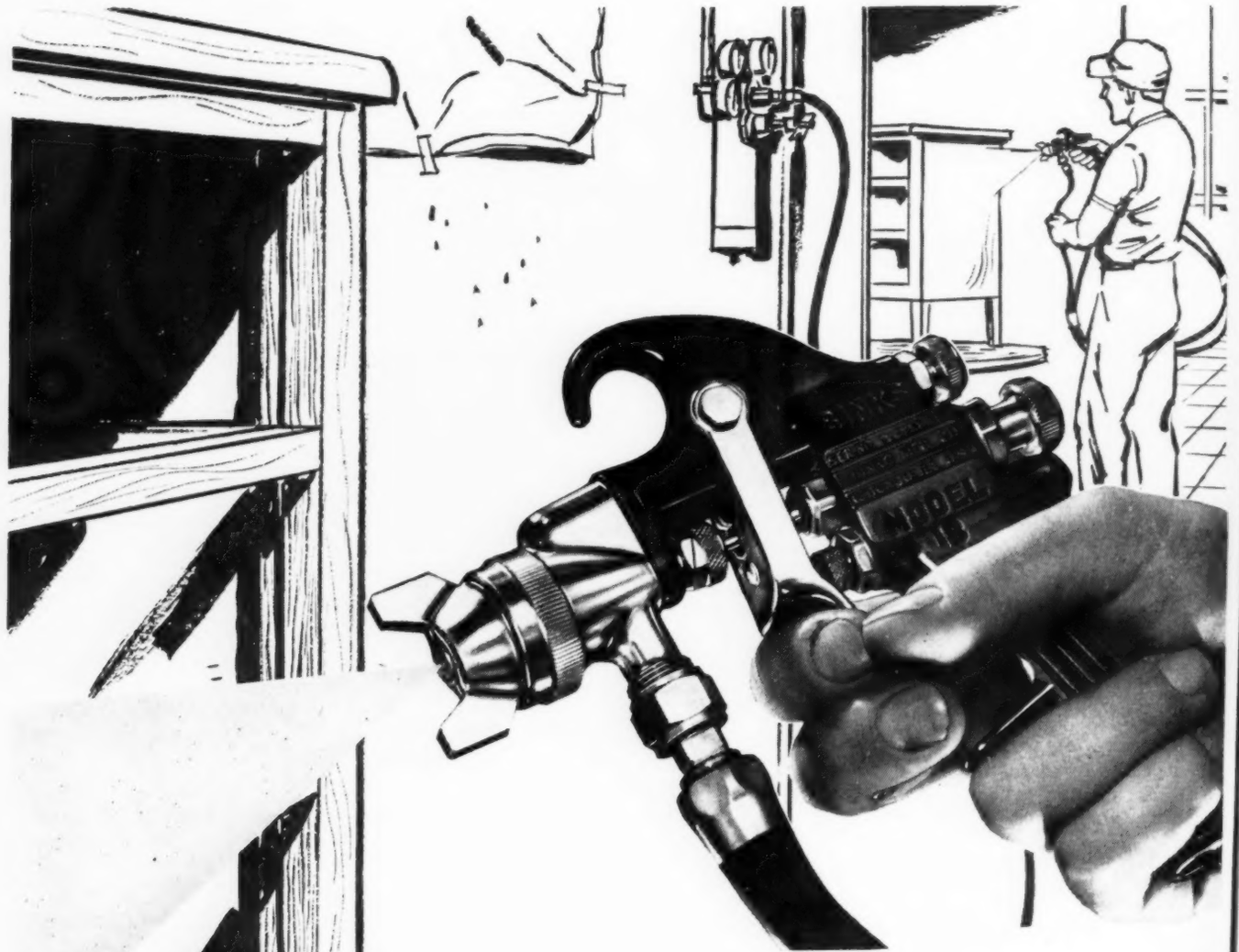

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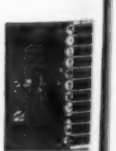

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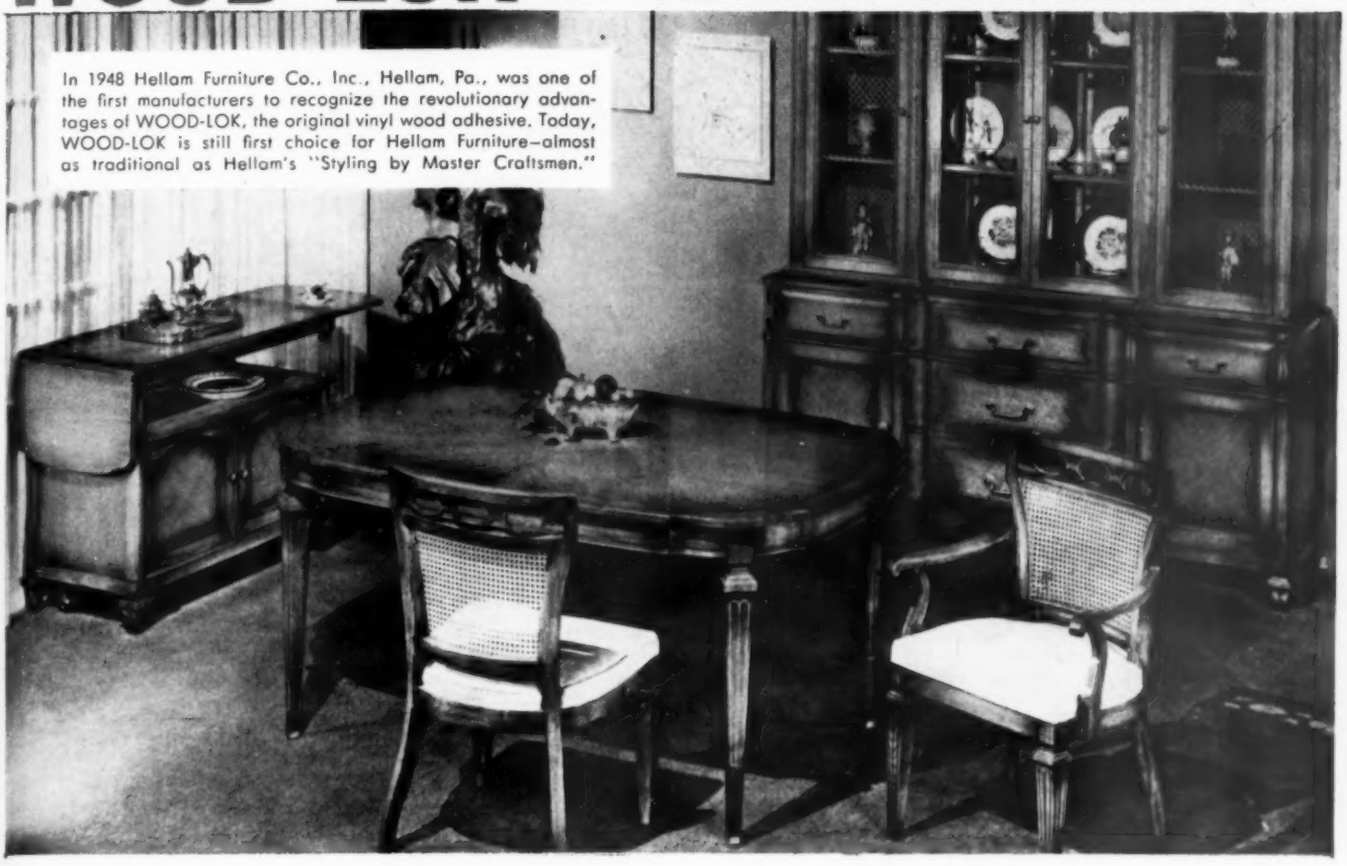

In 1948 Hellam Furniture Co., Inc., Hellam, Pa., was one of the first manufacturers to recognize the revolutionary advantages of WOOD-LOK, the original vinyl wood adhesive. Today, WOOD-LOK is still first choice for Hellam Furniture—almost as traditional as Hellam's "Styling by Master Craftsmen."

A TRADITION SINCE 1948

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WOOD-LOK is ready-for-use. No mixing. No heating. Virtually odorless. Nonirritating to skin. Lasts all day in the pot. Cleans up readily with water.

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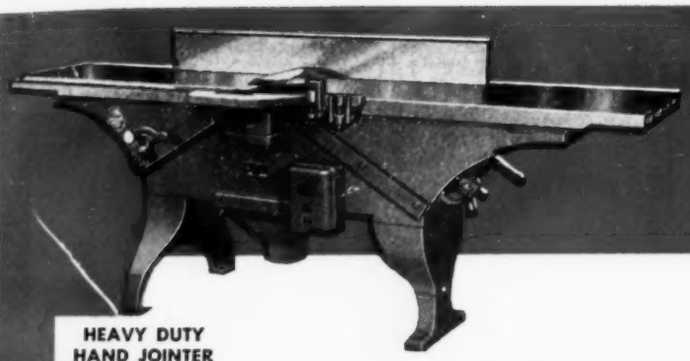

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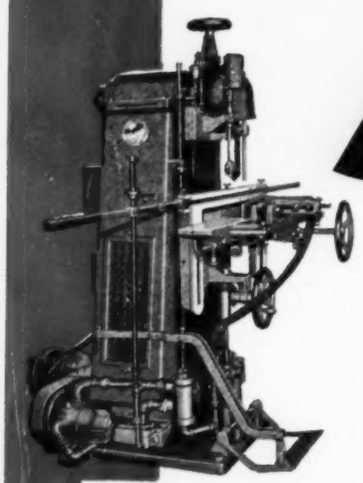

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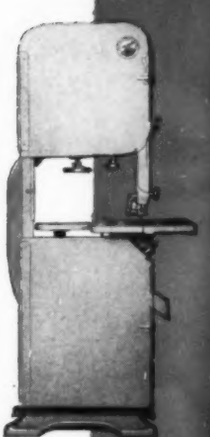
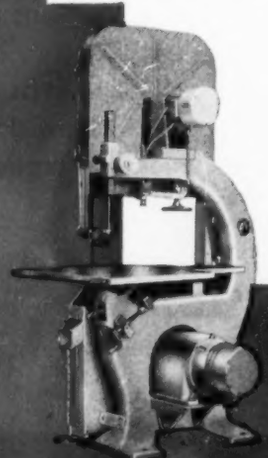


BAND SAWS



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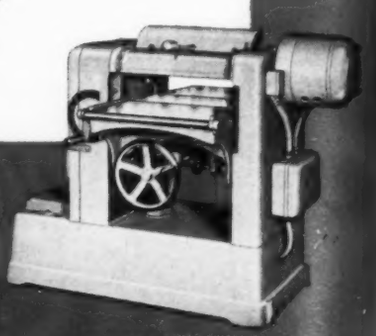

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Facing, beveling, stop chamfering—these and many more useful operations are handled quickly and accurately on this machine. Ask your Delta Industrial Distributor (listed under "TOOLS" or "MACHINERY") to demonstrate how this versatile, rugged Jointer can put more savings in your pocket. And take the time to see the full line of Delta woodworking tools and accessories—you'll be glad you did.

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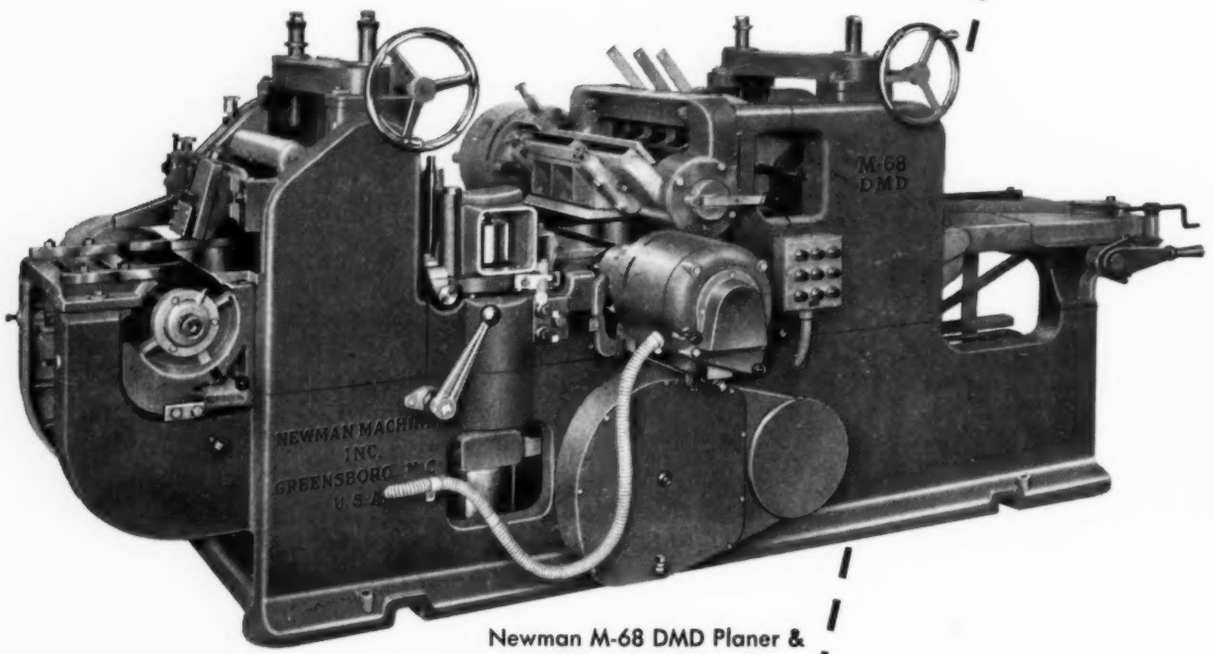

Newman M-68 DMD Planer & Matcher. Size 16" x 6".

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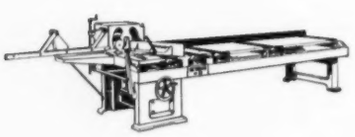
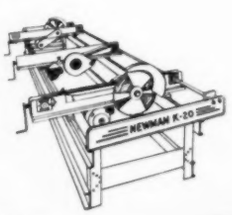
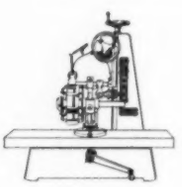


M-55
Feed Table

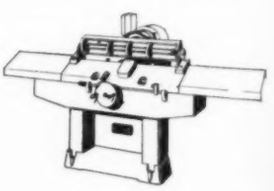


K-20
Trimmer

G-71
Side Head Grinder



G-132
Automatic Knife Grinder



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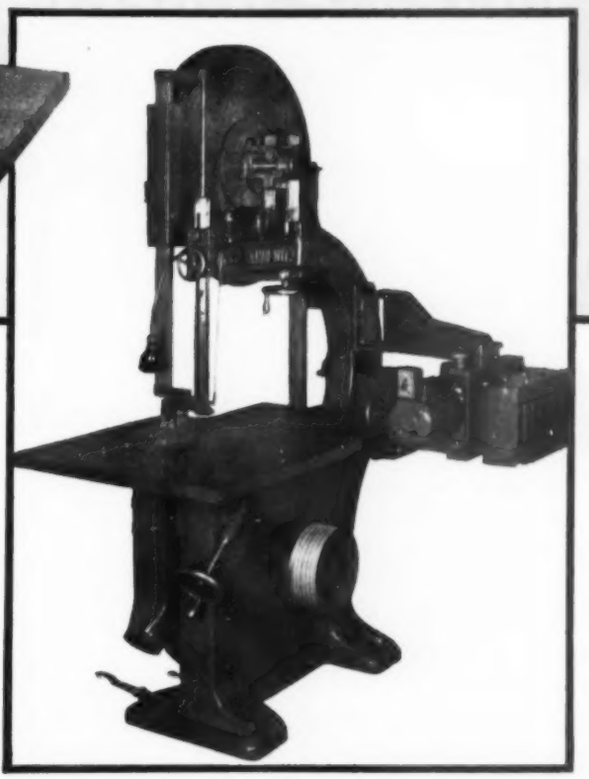
Now...a precision re-saw attachment for your 36"

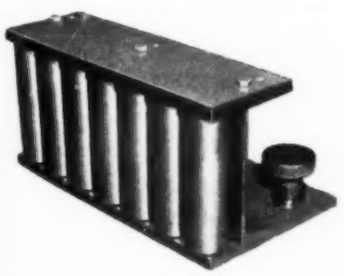
TANNEWITZ

HIGH SPEED band saw

With this attachment your TANNEWITZ high speed band saw becomes a thoroughly practical, accurate re-saw for both finished and rough stock up to 12 inches wide and any normal thickness and length. An 8" chain feed with replaceable rubber pads provides positive, mar-proof feed. A ¾ H.P. Graham transmission gives you any desired rate of feed from 0 to 150 F.P.M. And you can switch from re-sawing to conventional band sawing in a matter of seconds. It's an extremely economical means of providing your plant with the advantages of re-sawing. Why not make your Tannewitz band saw do double duty? Write for prices and full particulars.



The Re-saw Attachment can be swung out of the way for unencumbered band sawing in a matter of seconds.



The roller-bearing, frictionless fence is optional equipment.

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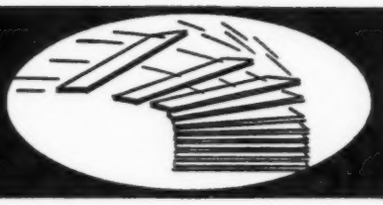
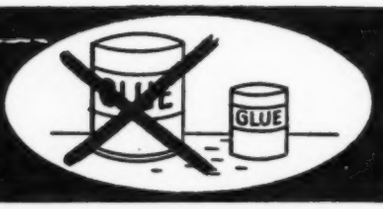
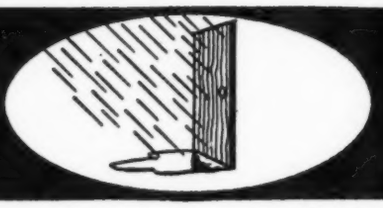


LOWER GLUE COSTS



Increase Water Resistance



. . . . with PERKINS 8523 CASEIN GLUE

Perkins 8523 Casein Glue, a blend of several adhesive materials, offers manufacturers of flush doors an opportunity to speed up production and increase water resistance at a lower glue line cost!

The formulation also offers advantages in other panel-to-frame gluing operations as well as in veneering and in laminating.

With Perkins 8523, pressure periods of up to one hour are sufficient. Overnight stacking is recommended for best results but less time is possible where necessary. The glue line complies with the cycle soak test called for by Commercial Standard CS 171-58 for interior doors as well as the Type II and Type III requirements of CS 35-56. Actually, the bonds obtained with the Perkins 8523 formulation have given far better results than the Commercial Standards require.

The mixed glue cost of the formulation is much lower than that of other glues with fast set and high water resistance, representing a considerable saving to most glue users. It has a pot life of 6 to 8 hours, depending upon room temperature. Storage life of the unmixed Perkins 8523 is from three to five months.

It should be emphasized that Perkins 8523 is not an ordinary casein glue. It is a carefully prepared blend of casein with other materials having desirable adhesive properties.

Samples of the formulation are available for your tests or the Perkins service representative in your area will be glad to conduct a demonstration in your plant to prove the advantages you can obtain with Perkins 8523.

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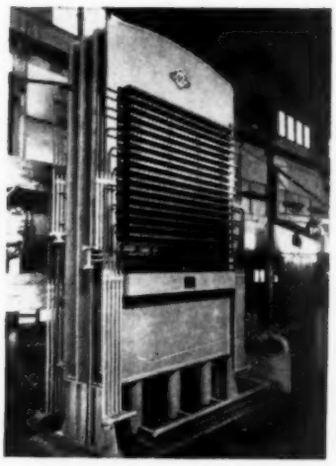
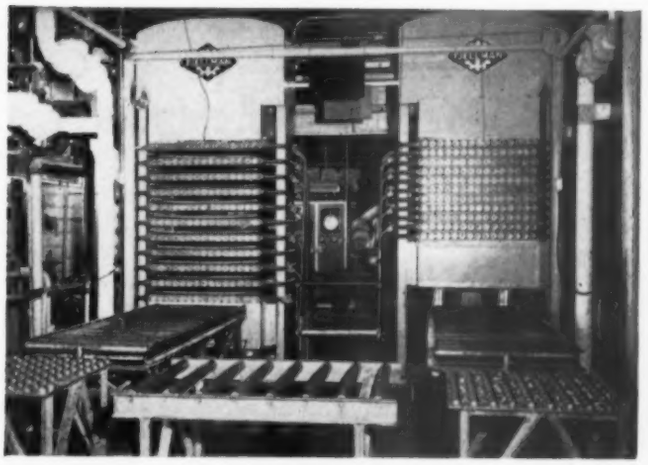
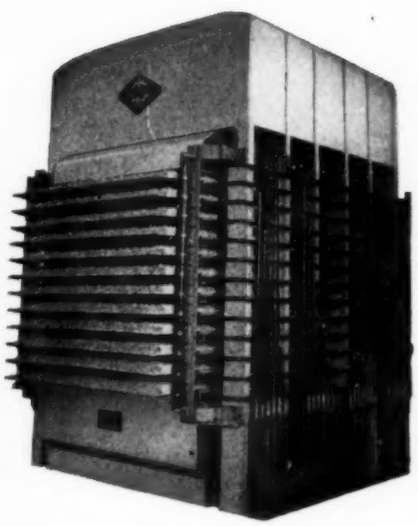


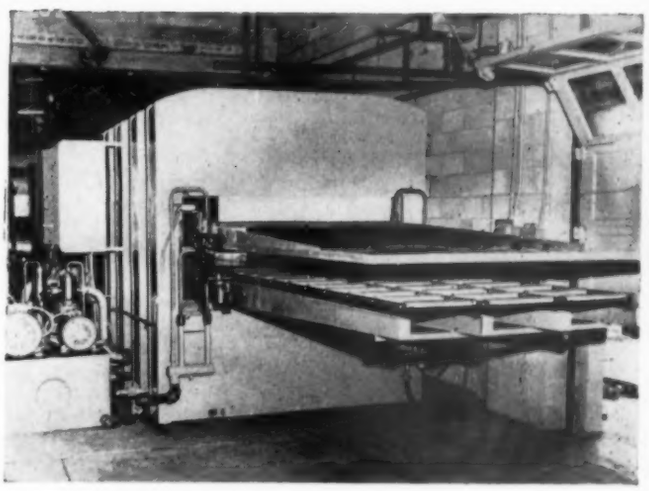
Veneer and Plywood: Presses available 1 to 24 openings in platen sizes up to 90″ x 300″, up to 350 PSI over entire platen area. Recent installations: Weyerhaeuser Timber Co., MacMillan & Bloedel, Ltd., Evans Products Co., Oregon Veneer Co.



Plastic: Presses available 1 to 24 openings in platen sizes to 66″ x 150″, up to 1600 PSI over entire platen area. Recent installations: Vinyl Plastics, Fabricon Products, Fiberesin Plastics, Albano Co. Virtue Bros. Mfg. Co., McNeff Industries.



Particle Board, Chip Board, Etc: Presses available 1 to 24 openings in platen sizes to 66″ x 150″, up to 1600 PSI over entire platen area. This Fjellman-American hot press is capable of producing the finest particle-type board by wet or dry processes, either chip, flake, shaving or fibre.



Automatic Press Loading-Un-Loading: Auto-Loading Shuttle Feeder makes short work of the loading cycle. Permits doubling present output. Raw materials and finished pieces are shuttled simultaneously to opposite ends without interruption — with minimum crews, reduced idle press time and reduced handling costs.

Minimum tolerance Laboratory presses up to 3000 PSI over entire platen area for manufacturers' research in producing all types of wood, chip and plastic lamination. Aluminum gluing presses for any production requirement.

Write for latest catalog giving application and technical data on the complete Fjellman-American line.

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PARTICLE BOARD - its development,

By Paul H. Graham, Contributing Editor

The history and production of particle board, from the time it was first introduced on the wood products scene, is a story of dedicated efforts based on the full utilization of wood. Product improvement stems from greater research, added experience and new equipment and processes. This, together with the aggressive invasion of new markets, puts the particle board industry on the threshold of even greater success.

Storage silos at the Formica Flakeboard plant, Farmville, North Carolina.

processes, properties, markets

The particle board industry stands upon the threshold of success and faces a tremendous sales potential in many new markets. Significantly, their products have been accepted commercially as individual, well-engineered products which possess their own unique characteristics, advantages and controlled properties which can be precisely tailored to meet a wide range of end-use requirements.

What Is Particle Board?

To more clearly understand the basic concept of particle board, the following definition as published in the FHA interim Standards is quoted: "A dry formed panel material consisting of particles of wood bonded together with a synthetic resin or other added binder, being manufactured from clean wood material which is reduced by cutting, hammer milling or grinding to produce granules, slivers, shavings or flakes, that are classified for size, dried to a controlled density, and the binder cured under heat and pressure."

Origin And Historical Review

Any search for the obscure origin of particle board is bound to turn up the same old folk lore. The date and name will vary with country of reputed origin, but the story is always the same. A workman concerned with waste represented by a huge pile of sawdust at a sawmill or woodworking plant, mixed sawdust with glue and tamped the mixture into a crude frame made of wood or canvas. After baking the mixture in the sun, he stripped off the frame and rushed to the village to show off the artificial wood board he had made.

The idea of making a commercial board product from wood particles goes back more than 100 years. Board products made of wood fibers, insulation board and hardboard, were produced as far back as 1914 in Europe and 1926 in the United States, but actual quantity production of particle board did not start until about 1947.

A search of patents and contemporary literature reveals more than 2,000 patents recorded to date throughout the world for processes or portions of processes for the manufacture of wood particle board, including: America, Germany, England, Switzerland and France.

Although there was much theorizing and experimentation reported for many years, it was not until 1930 with the advent of thermosetting synthetic resins for use as a binder, that successful conversion of low-value wood particles into high-value board products was attained. It is interesting to note that phenolic resin was used as a particle board binder before urea resin which is now most popular.

The first reported commercial particle board was a homogeneous single layer board, covered by Swiss patents issued to Torfitwerke-G. A. Hasek, and made of Spruce chips and phenolic resin binder in a plant at Bremen, Germany, in 1941.

Other significant developments included:

1. The introduction of a three-layer particle board covered by French patents issued to Fred Fahrni in 1943 and 1945, designed to use coarse wood particles for the core or middle layer, and thin flat particles (flakes or shavings) for the outer or surface layers.

2. The development of a continuous extrusion process in 1949 by Otto Kreibaum at Lauenstein, Germany.

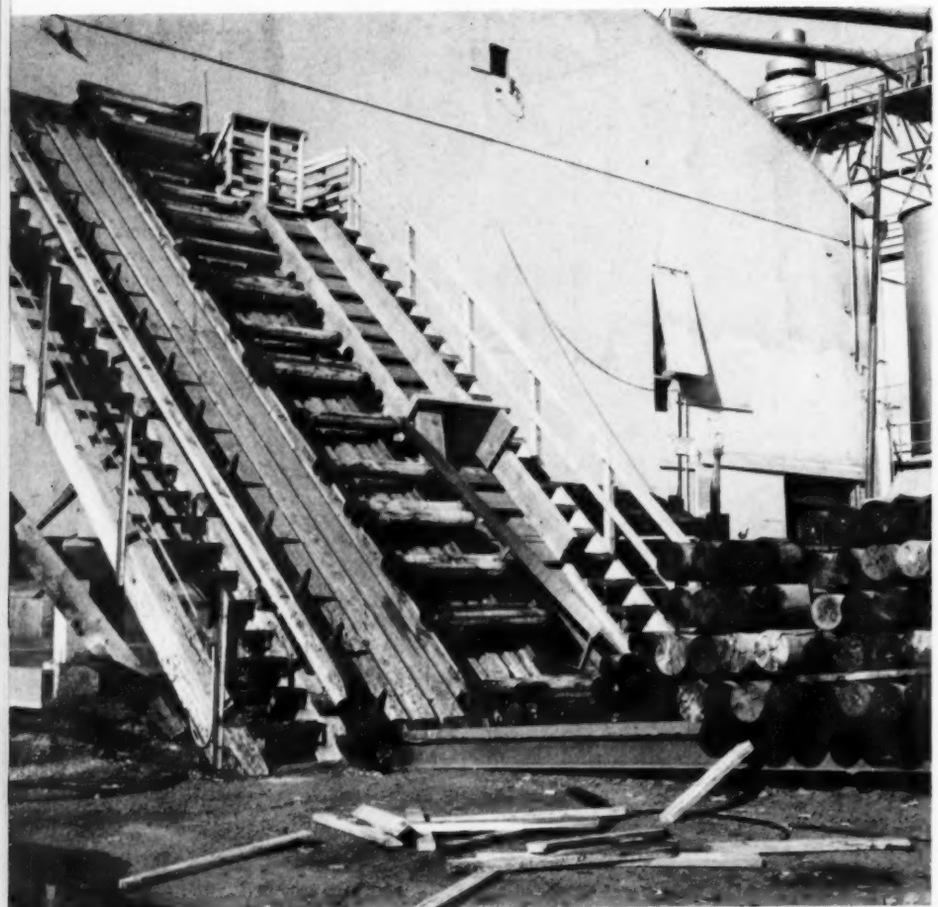
3. The development of a continuous flat-pressing process to produce particle board in a continuous sheet, in 1949 by the Vere Engineering Company, Limited, of London, England.

Classification And Composition Of Particle Boards

In 1957 George G. Marra, head of the Wood Technology Section, Division of Industrial Research at Washington State College, prepared a paper in which he classified the different kinds of particle board, by type of wood elements and number of layers, into 19 classifications as follows:

One-Layer Boards:

1. Flat-pressed particles.
2. Extruded particles.
3. Flat-pressed mixture of particles and disintegrated flakes.
4. Extruded mixture of particles and disintegrated flakes.
5. Flat-pressed, intact flakes.



Elevator deposits Douglas Fir peeler cores to circular jump saw prior to flaking operation.

Texture material (TM) for both faces of Novoply illustrates uniformity required in modern particle board.

6. Flat-pressed, disintegrated flakes.
7. Extruded, disintegrated flakes.

Two-Layer Boards:

1. Coarse particle base with fine particle surface.
2. Particle base with decorative flake overlay.
3. Disintegrated flake base with fine particle overlay.
4. Disintegrated flake base with decorative flake overlay.

Three-Layer Boards:

1. Fibrous particle center with fibrous fine surfaces.
2. Coarse particle center with fine particle surfaces.
3. Disintegrated flake center with fine particle surfaces.
4. Coarse particle center with disintegrated flake surfaces.
5. Coarse particle center with intact thin flake surfaces.
6. Disintegrated flake center with intact thin flake surfaces.
7. Disintegrated flakes: thick flake center with thin flake surfaces.
8. Intact flakes: thick flake center with thin flake surfaces.

Particle board is now being produced as a single-layer homogeneous sheet material, containing the same type of wood particles throughout, or a compatable mixture (such as splinters and flakes), or as a composite multi-layer sheet material with surface layers of higher quality or finer texture than the core or middle layer. The multi-layer board generally lends itself better to product diversification and precise tailoring of board composition to suit end-use requirements.

Basic Processes

The basic processes used to produce particle board are: flat pressure—with heat and pressure required for forming applied in some form of hot platen press; and extrusion—using either a vertical or horizontal extrusion press. Flat pressing may be either a continuous process or a discontinuous (batch) process. Extrusion is essentially a continuous process. All multi-layer boards are flat pressed, but single-layer boards may be either flat-pressed or extruded.

Many of the patents recorded dur-

ing the period of 1938 to date formed the basis of such well-known particle board manufacturing processes as Novopan and Novobord (Fahrni); Behr, Homogenholz (Wyss); Okal (Kreibaum); Bartrev (Vere); Curvi-Board (Harder); Pali-Panel, Lanewood (Lane-Adamson); NuPly (Elmendorf); Novoply (U.S. Plywood); Chipcraft (Crafton); Chipcore (Miller-Hoft); Plaswood, Prespine (Curtis); Tenex (Clark and Mottet); Bison (Bahre); and Flakeboard (Formica).

All of the basic processes however, have been modified and improved as well as the special machinery and auxiliary equipment used. Better selection of raw materials, more efficient particle preparation, better binders, new additives, more precise proportioning, blending, laying and forming techniques, improved pressing and heating, quality control of both process and product, better transport mechanisms, modern production methods, and improved plant, product and process engineering—all have combined to make the production of particle boards of superior quality economically feasible.

Physical Properties Vary

Aside from differences in composition from various types of wood particles, type and amount of binder and additives used, particle boards differ in physical properties. The flat-pressed boards show almost uniform strength in both longitudinal and transverse directions, while extruded board shows maximum strength in the transverse direction. Flat-pressed board has minimum shrinkage across the face and maximum shrinkage in thickness, while extruded board shows directly opposite shrinkage characteristics.

Variations in density, surface smoothness, binder and sizing material, particle shape and size, and method of manufacture—all account for the industry's inability to develop a general purpose particle board capable of satisfying the requirements of all users or potential users.

Particle Board Is Also Classified by Density

Particle board is produced in three major density ranges, with higher values for physical properties usually associated with higher densities. Classification by density recognizes the following types:

1. High density (hardboard) type—has a density of 50 to 75 lbs. per cu. ft., and is actually a dry process hardboard differing from conventional hardboard in its bond.

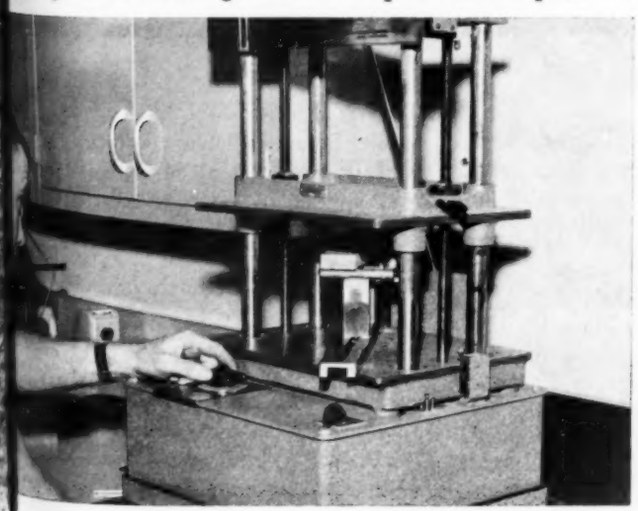
2. Medium density type—has a density of 25 to 50 lbs. per cu. ft., and is currently being produced in the greatest diversity and volume of products.

3. Low density (insulating) type—has a density of 15 to 25 lbs. per cu. ft., and is produced in limited volume as a lightweight board having special insulation, acoustical and other properties required in the building trade.

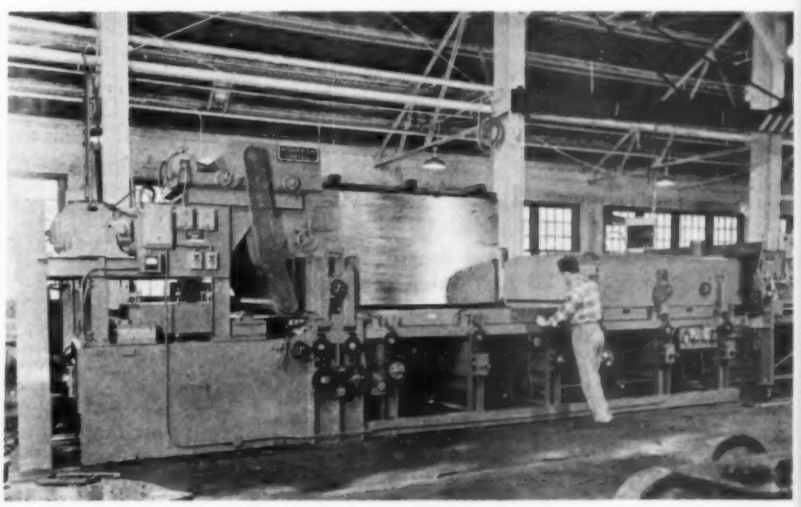
For economic reasons, most producers hold board density to the lowest values consistent with end-use requirements. This makes medium-density particle board most popular for general use applications.

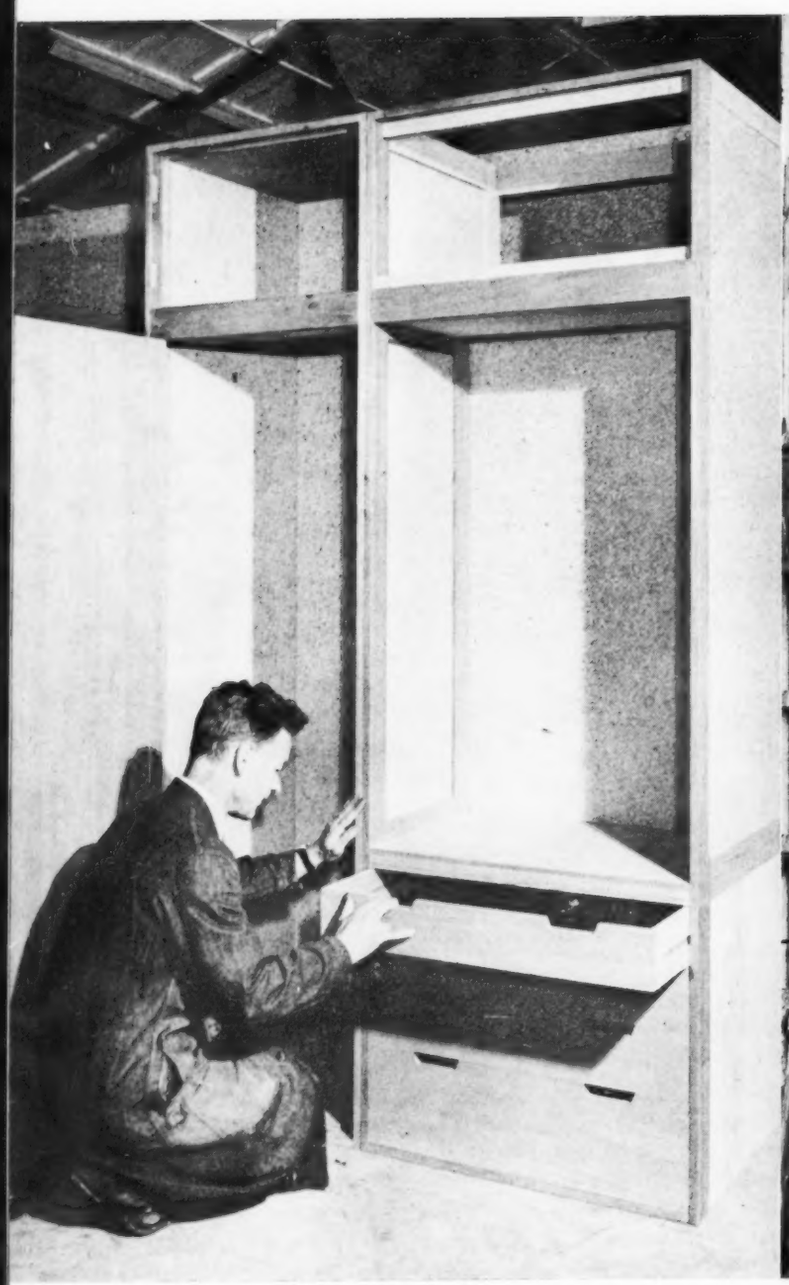
Particle board was developed essentially to meet a great technological challenge which has faced the forest products industry ever since products were first manufactured from wood, namely: "An economical means of converting forest and manufacturing waste into useful and profitable products." Fred Fahrni, inventor of Novopan and one of the most enterprising of the particle board pioneers, stated that his objective was to find a method of utilizing wood waste of varied kinds to produce a product of large dimensions, free from the inherent defects of natural wood."

Testing Formica Flakeboard on static bending press—a part of continuing research and product development.

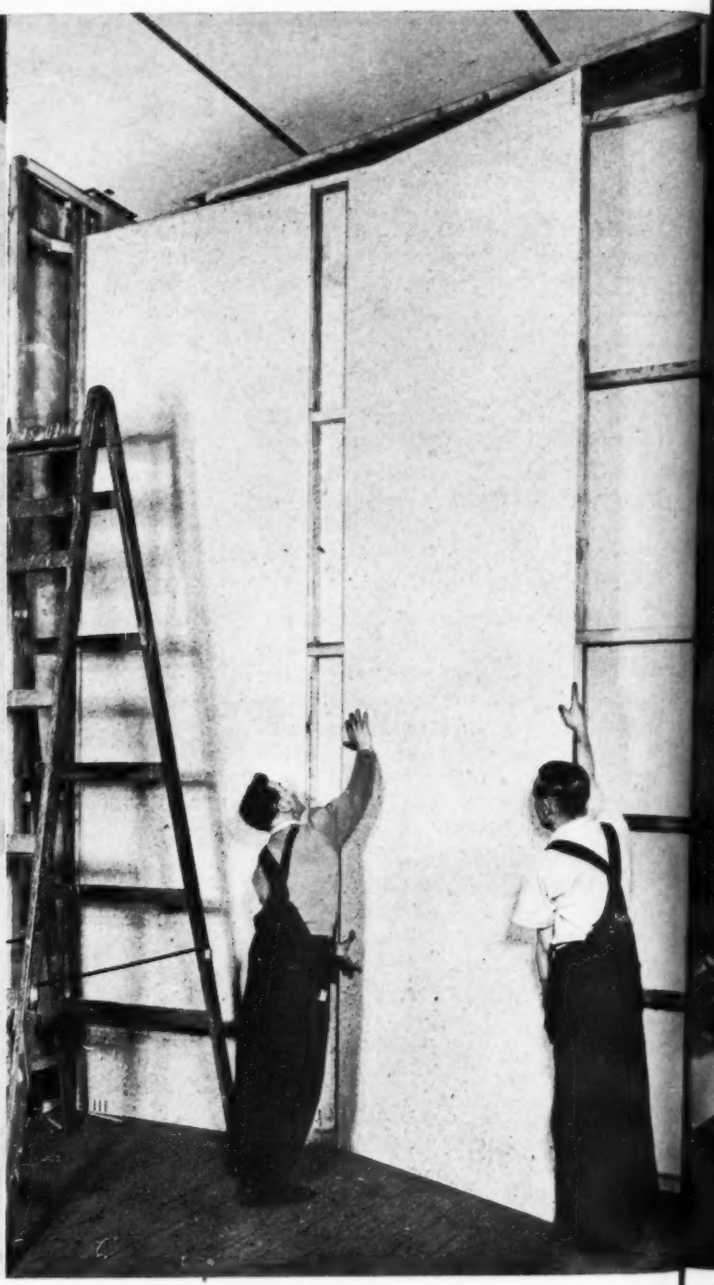


Automatic extrusion machine used in modern plant for continuous production of extruded particle board.





Built in wardrobes and dressing table made of particle board overlaid with decorative wood.



Bartrev particle board used as floor to ceiling partition in a theater.

Standard System of Nomenclature Needed

Early particle boards carried such names as artificial wood, pressed material board, wood waste board or composite board. Later, names indicative of particle type were promoted, such as chipboard, chipcore, excelsior board, splinterboard and waferboard. In many countries particle boards made of particles smaller than flakes, shavings or other wafer-like types were generally known as chipboard. This term proved very confusing as it has long been used by the pulp and paper industry to describe a low density cardboard-type product used in cartons and packaging. Boards made with larger particles have been called flakeboard, shaving board and waferboard.

From this confusing array of miscellaneous terminology has emerged an identification of major types of particle board by its wood element classifications, such as particle board and flakeboard. The industry as a whole, however, lacks a uniform and well defined nomenclature which must eventually be developed, to enable the potential user to specify the type of particle board product best suited for his specific requirements.

The Future Presents A Challenge

Particle board products are becoming more diverse, and refinement of products which came with added experience, research, improved processes and equipment, have laid the

Unique living room decor produced by use of Cedar flakeboard panels to highlight accent areas.

foundation for the particle board industry. It has made deep inroads into markets for board products, and is competing successfully with solid wood, hardboard and plywood for many applications.

Many new uses of particle board loom on the horizon, and the industry is viewing thoughtfully and analytically the potential industrial market in formulating sound plans for the future. The particle board industry is prepared to meet the anticipated growth and challenge that lies ahead.

Editor's Note:

An article entitled "User Benefits Prove Particle Board Quality" appears on page 28 of the January, 1961 issue of Hitchcock's WOOD WORKING Digest. The article describes the production of Novoply particle board under Fahrni license at U.S. Plywood's Shasta Division plant in Anderson, California. In this issue of Hitchcock's WOOD WORKING Digest there is an interesting article on a new particle board (flakeboard type) called Cedawood® produced by Lester Cedar Products, Inc., Sweet Home, Oregon.

Raw material moves into plant on shop built conveyor.

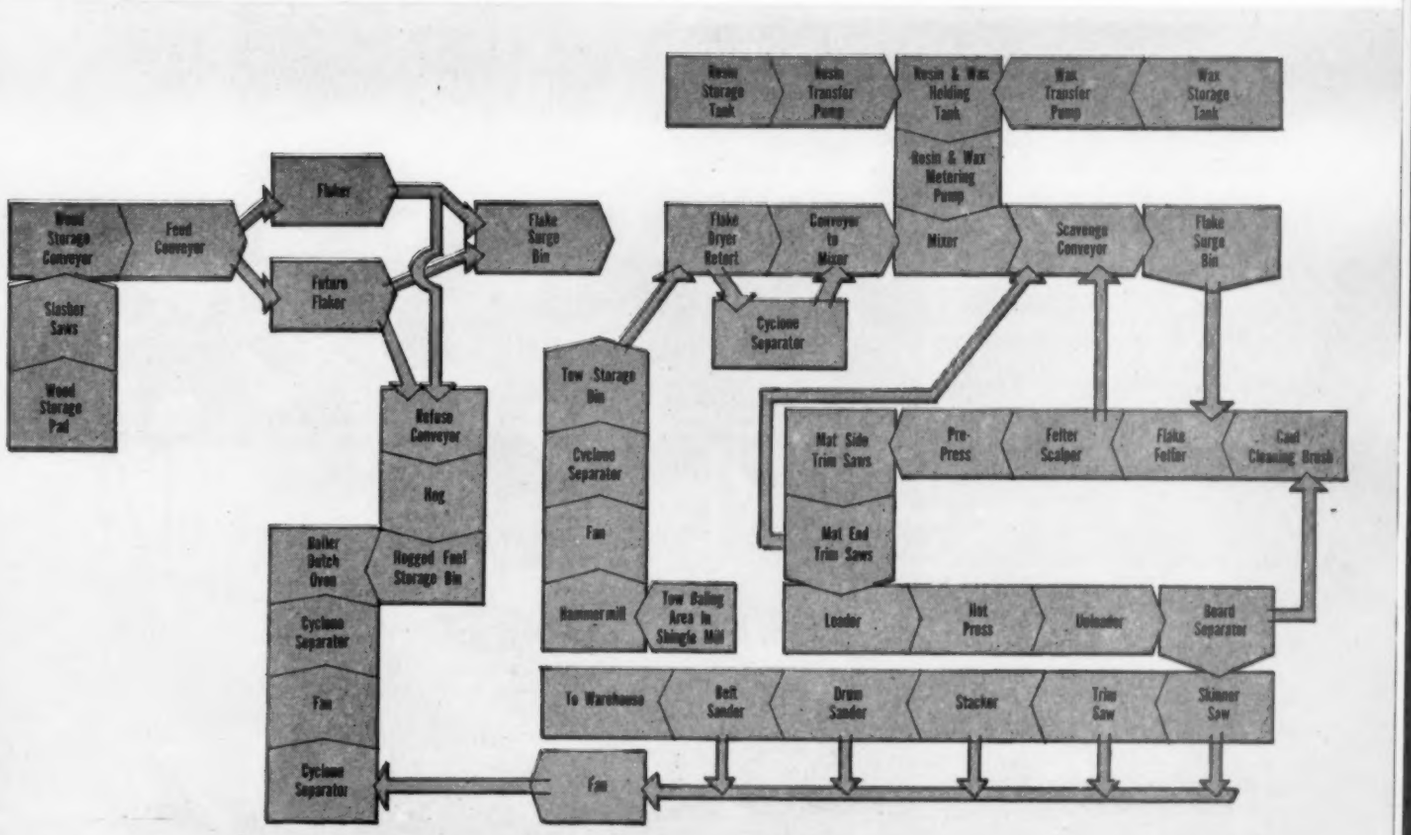
Expandable flakeboard plant of costs, labor,

BY BERT GOLDRATH, WEST COAST EDITOR

Tailored to conform to special requirements, this small Oregon mill proves that size is not the main criterion in the profitable production of flakeboard. Costs were reduced during the construction and equipping of this new mill through the use of Polaroid photography and plant personnel.

How small can a flakeboard plant be to remain within the limits of efficient and profitable operation? For an answer, take a word and picture tour with Wood Working Digest through the new facility of Lester Cedar Products, Inc., at Sweet Home, Oregon. You will see how waste from a woodworking operation, if sufficient in volume, can be turned into a profitable product with a combination of proper planning and competent engineering.

Here is a plant built at relatively modest cost, yet one which is expandable to handle anticipated future increases in production volume. To double the output the principal change necessary would be merely to add four more openings to the present four-opening hot press for a total of eight.



tailored to requirements raw material and markets

Polaroid Photography Cuts Cost

The plant has two other distinguishing features: first, that it was built, except for certain major components, entirely by company workmen, right on the job site; second, that the intriguing new science of instant photography played a big part in building and equipping the plant at minimum cost.

Mel Lester, who heads up the operation, worked closely with Industrial Development Company, Inc., of Tacoma, Wash., until the plant was completed in mid-1960. Industrial Development engineered the project from start to finish, and Lester kept their Tacoma office, more than 200 miles away, apprised of progress with the use of his Polaroid camera. He mailed progress pictures every week or two, and every time a new item of equipment was installed. This minimized the time necessary for Industrial Development's engineers to be on the job.

In general terms the new plant produces high-quality flakeboard at the initial rate of 65 tons per day. Capacity of the present plant will be 10,000,000 square feet of board per year on a ¾-inch basis. Facilities provide for 24 production workers on three shifts.

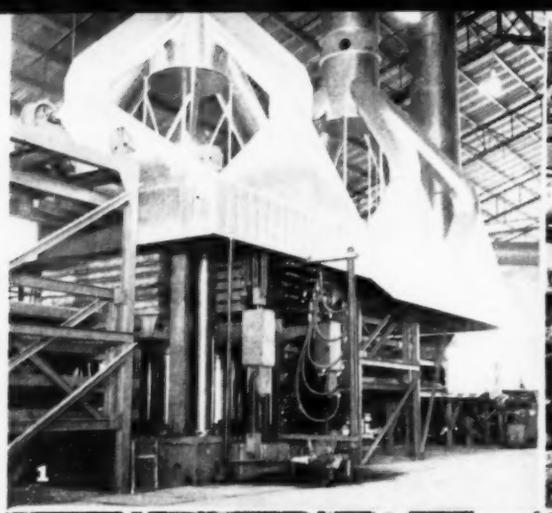
"Do-It-Yourself" Saves 25% In Building Plant

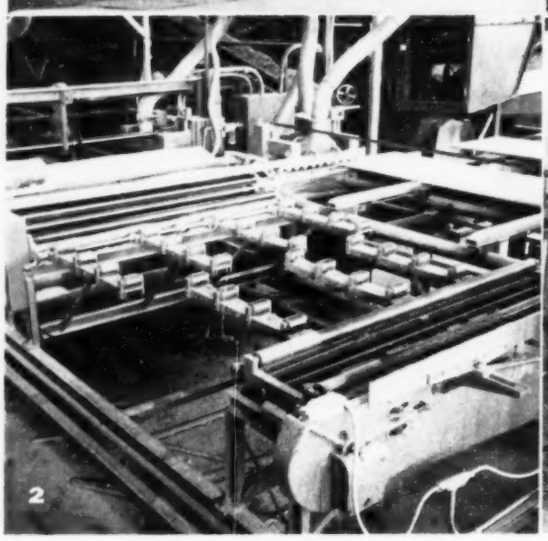
According to Lester, equipment was largely built by three of his men within the space of a year, using only such basic tools as a drill press, metal lathe and welding equipment. He estimates that about 25 per cent of the over-all cost was saved by the "do-it-yourself" operation. Principal items purchased included the hot press, surge bin, skinner and trim saws, loaders and unloaders, sander and air compressor. Felter, pre-press, board separator and all conveying equipment were among the shop-built items.

The plant is comprised of a wood receiving and storage section, flaking and flake storage, drying, resin mixing, board production, sawing, sanding and warehousing.

Utilize Waste From Cedar Shingle Mill

Raw materials consist of one-third Cedar and two-thirds Alder or Maple.





1. General view of hot press.

2. Skinner and trim saws showing crossover conveyor.

3. Slasher saws reduce logs to short lengths for flaking.

4. Closeup of flaking machine.

5. Additional pictures of the same subject are made in Lester's office on a print copier.

6. In a few seconds, finished print is taken from camera.

7. Closeup of Lester photographing equipment, as he did when plant was being equipped.

The Cedar used comes from waste at the Lester shingle mill, which produces about a car a day of Cedar roofing shingles. Both the waste and purchased logs are broken down into flakes averaging ⅜″ x 1″ in size and .010″ to .020″ in thickness.

Flakeboard panels are manufactured in sizes from 48″ x 96″ to 68″ x 122″. They are marketed chiefly in the eastern half of the country. End uses are in furniture-making (such as table tops), sink counters, cabinet-making, sliding and folding doors, and underlayment. Thickness range of panels is ¼″ to 1⅛″.

Cedawood® Formulation Gives Superior Surface

Cedawood® has a modulus of rupture of 3,000 psi; edge screw holding, 280 pounds; face, 300 pounds; internal bond, 70 psi; moisture content, 5 percent; density, 42.2 pounds per cubic foot. Cedawood® properties are equal in all directions. The panels are homogeneous in makeup. Resin content provides adhesiveness between flakes while the wax resists moisture absorption, and affords a superior surface finish.

Cedar waste from the shingle mill goes through a Jeffery hammer mill and is blown to the flake dryer retort. Maple, Cedar and Alder logs are received by truck in a half-acre outside storage area.

Blending Carefully Controlled

Eight-foot lengths are carried through the slasher saws on a chain conveyor and cut into two-foot lengths. Intermingling of species takes place in the flaker, with refuse conveyed to a star hog and to the boiler burner. The slasher saws and conveyor were designed by Industrial Development and shop-built. The Industrial Development Co. flaker will handle wood 12″ x 16″ in size.

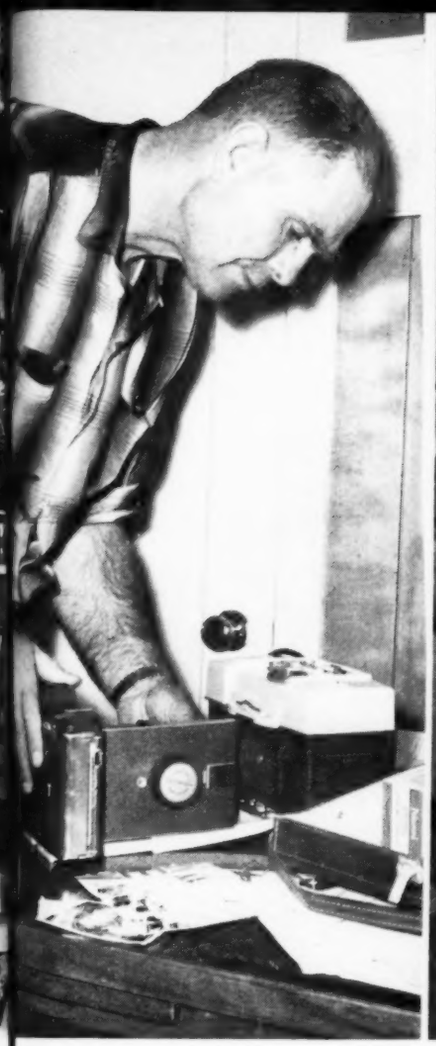
Flakes move along to a Link-Belt surge bin which holds a 20-minute supply. In the dryer the flakes are brought down to proper moisture content. Cyclone separators in the production flow are by Clarke Sheet Metal Co. of Eugene, Ore. Urea formaldehyde resin and wax in their respective storage tanks are transferred by Beam pumps into a common holding tank, from where they are metered by pump into a mixer.

Mat Shaver Controls Flake Height

Flakes from the revolving 60x5-foot dryer (kiln-type, fuel oil fired) are conveyed to the mixer and coated with resin and wax in a specially designed continuous mixer. The resin and wax coated flakes then go to another Link-Belt surge bin, with revolving plate bottom, which feeds the closed circuit production line. Steel cauls pass under the flake spreading machine, with a mat shaver controlling the height of flakes on cauls. With the "biscuits" now ready for the pre-press they are all a uniform size of 71″x128″.

Oil And Wood Waste Fire Boiler

Mats are consolidated in a continuous pre-press, then excess is trimmed off ends and sides, by 16″ cutoff saws. The hot press, with four openings, is a 68″x122″ Lodge & Shipley Columbia. It is heated by an oil and wood waste fired steam



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boiler (capacity, 4,000 pounds per hour) to about 350 degrees F. Loading and unloading of the hot press is done automatically by machines built by American Manufacturing Co.

At the shop made separator, vacuum cups lift boards off cauls, which are transferred back to the forming section. Jenkins skinner and trim saws cut ends and sides of panels to exact dimensions. In the next step panels are automatically stacked and run through a 67″ Yates-American six-drum sander and a Timesaver belt sander.

Plans are afoot to install equipment for filling and overlaying Cedawood® panels.

Decision Based On Many Factors

One of the factors that helped Mel Lester make his decision to build the flakeboard plant was that, in his shingle mill, some 52 percent of the raw material was going into waste. Now all of this waste wood is utilized as valuable raw material. It is noteworthy in the particle and flakeboard industry that a comparatively small operation such as this one can be set up to take advantage of the availability of valuable by-products.

E. T. Smythe of Industrial Development notes that consideration must be given to several controlling factors in establishing a small tailor-made plant. He indicates:

1. What raw materials are available? How much waste material is generated by the existing manufacturing operation that can be utilized? What raw materials will have to be purchased?

2. What is the product's market potential?

3. Is a sales organization available to handle the output of plant production?

4. How much capital is available and how much outside financing will be required?

5. What existing facilities and personnel can be employed for the erection of the plant?

6. What personnel are available for the operation of the plant?

7. Can a plant be built which is economically feasible with the capital resources that are available?

Must Develop The Best Possible Product

"If the investigation of these factors indicates a plant should be built," said Smythe, "the next step is to develop the best product which can be produced from the available raw materials. This involves work at the laboratory level to produce samples and evaluate the work by comparison with industry standards. Laboratory work includes a determination of resin and wax content, pressing times, and temperatures.

"The next step is a pre-engineering study to determine the size, type and cost of equipment required for the plant. This includes plant layout, building arrangements, machinery arrangements and flow diagrams. Bids are taken on all major pieces of equipment and an accurate cost estimate is made."

TRENDS

in the American Wood Industry

The growing magnitude and certain trends in the American wood industry are shown and discussed in this condensed summary of lumber production, imports, exports and other basic data pertaining to the industry for the calendar year 1959.

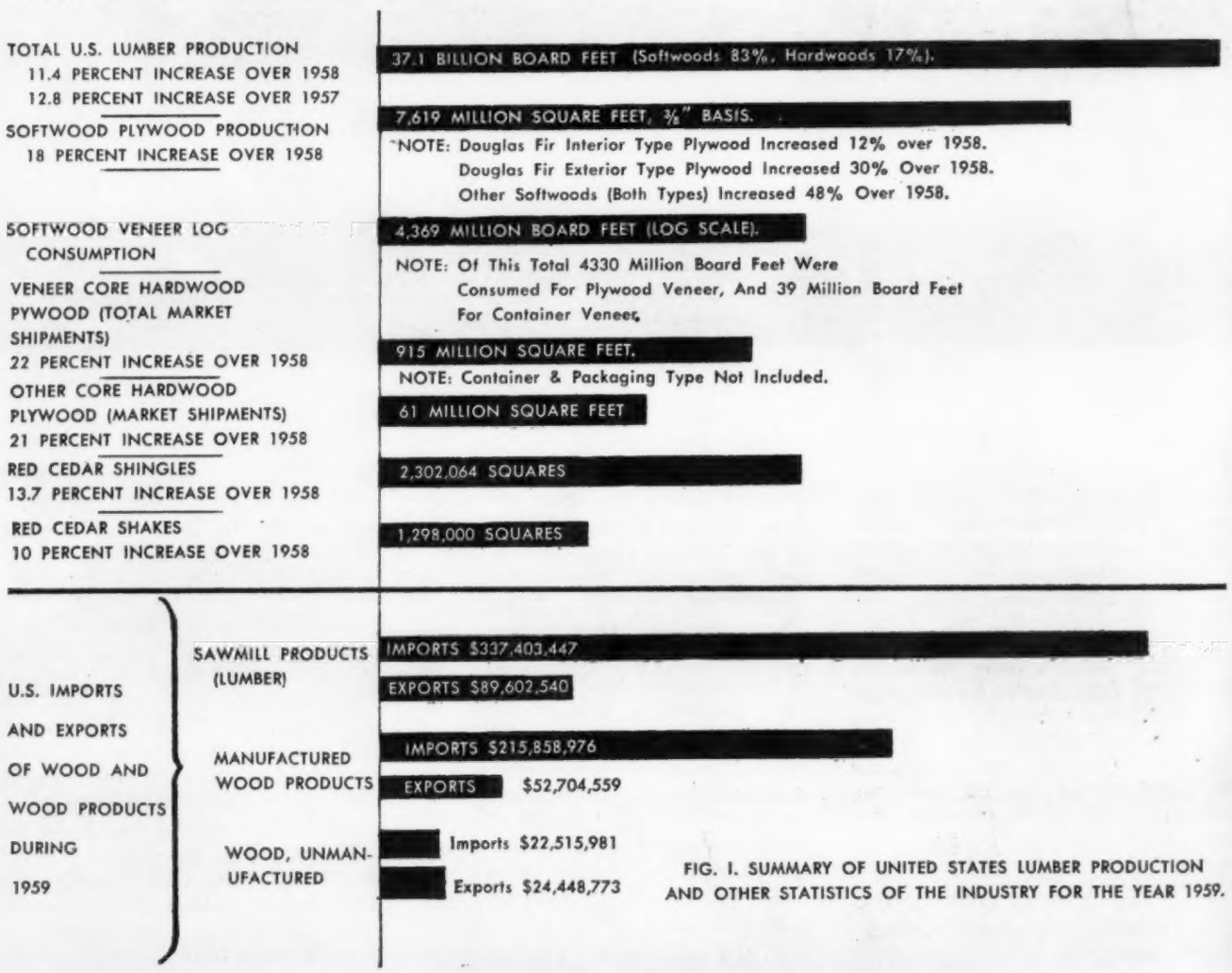

TOTAL U.S. LUMBER PRODUCTION
11.4 PERCENT INCREASE OVER 1958
12.8 PERCENT INCREASE OVER 1957
37.1 BILLION BOARD FEET (Softwoods 83%, Hardwoods 17%).
SOFTWOOD PLYWOOD PRODUCTION
18 PERCENT INCREASE OVER 1958
7,619 MILLION SQUARE FEET, 3/8" BASIS.
NOTE: Douglas Fir Interior Type Plywood Increased 12% over 1958.
Douglas Fir Exterior Type Plywood Increased 30% Over 1958.
Other Softwoods (Both Types) Increased 48% Over 1958.
SOFTWOOD VENEER LOG CONSUMPTION
4,369 MILLION BOARD FEET (LOG SCALE).
NOTE: Of This Total 4330 Million Board Feet Were Consumed For Plywood Veneer, And 39 Million Board Feet For Container Veneer.
VENEER CORE HARDWOOD PYWOOD (TOTAL MARKET SHIPMENTS)
22 PERCENT INCREASE OVER 1958
915 MILLION SQUARE FEET.
NOTE: Container & Packaging Type Not Included.
OTHER CORE HARDWOOD PLYWOOD (MARKET SHIPMENTS)
21 PERCENT INCREASE OVER 1958
61 MILLION SQUARE FEET
RED CEDAR SHINGLES
13.7 PERCENT INCREASE OVER 1958
2,302,064 SQUARES
RED CEDAR SHAKES
10 PERCENT INCREASE OVER 1958
1,298,000 SQUARES
U.S. IMPORTS AND EXPORTS OF WOOD AND WOOD PRODUCTS DURING 1959
SAWMILL PRODUCTS (LUMBER)
IMPORTS $337,403,447
EXPORTS $89,602,540
MANUFACTURED WOOD PRODUCTS
IMPORTS $215,858,976
EXPORTS $52,704,559
WOOD, UNMANUFACTURED
Imports $22,515,981
Exports $24,448,773

FIG. I. SUMMARY OF UNITED STATES LUMBER PRODUCTION AND OTHER STATISTICS OF THE INDUSTRY FOR THE YEAR 1959.

- Analysis of U.S. Lumber Production in 1959.
- 1950-1960: A Boom Decade for Lumber.
- Analysis of U.S. Wood Imports and Exports for 1959 Shows Imports Exceeded 1/2 Billion Dollars, to Yield an Import/Export Ratio of 3.5/1.
- Foreign Trade Policy: Time for a Change?

Lumber production in the United States during 1959 is estimated to be 37.1 billion board feet, lumber tally. This total represents an 11.4 percent increase over the 1958 total of 33.3 billion board feet, and a 12.8 percent increase over the 1957 total of 32.9 billion board feet.

Softwood lumber production estimates for 1959 and 1958 are 30.7 and 27.4 billion board feet, respectively, while those of hardwood lumber amounted to 6.4 and 6.0 billion feet for the corresponding years. These estimated production totals show increases of 12 and 6.7 percent from 1958 to 1959 for softwood and hardwood lumber, respectively.

Softwood Plywood and Veneer

Softwood plywood production in 1959 amounted to 7,619 million square feet, 3/8 inch basis, continuing the pace which has resulted in a new all-time high output each year from 1948 to date. The 1959 total exceeded the 1958 production of 6,487 million square feet by 18 percent. The 1959 production of Douglas Fir interior type plywood increased by 12 percent over the 1958 level, while production of Douglas Fir exterior type plywood increased by 30 percent. the 1959 production of other softwoods (both types) increased by 48 percent over the 1958 level.

Softwood veneer log consumption totaled 4,369 million board feet, log scale. Of this total, 39 million board feet were consumed for container veneer, and 4,330 million board feet for plywood veneer.

Hardwood Plywood Market Shipments

Market shipments of veneer core hardwood plywood, except container and packaging type plywood, amounted to 915 million square feet surface measure during 1959. This reflects an increase of 22 percent over the 753 million square feet shipped during 1958. Market shipments of other core hardwood plywood in 1959 totaled 61 million square feet surface measure, an increase of 21 percent over the 51 million square feet reported for 1958.

Red Cedar Shingles and Shakes

Production of Red Cedar shingles during 1959 amounted to 2,302,064 squares compared to 2,027,293 in 1958, an increase of 13.7 percent. The 1959 production of Red Cedar shakes (including those made from purchased shingles) amounted to 1,298,000 squares, an increase of 10 percent over the 1958 total of 1,181,683 squares.

1950-1960, A Boom Decade For Lumber

According to the National Lumber Manufacturers Association's recent release, 1950-1960 was a boom decade for lumber, during which many new records were set in the use of wood products. Lumber helped to build nearly 12 million new non-farm homes started during that period, and also served a vital need in many other types of construction activity. The greatest home building year on record for the number of units constructed was 1950, followed closely by the years 1955 and 1959. In terms of floor area, 1959 probably ranks first.

Our nation's forests are growing more wood each year than is being used,—a fact confirmed by the Federal Government. Thus the lumber industry and the consuming public received assurance that there is no danger of this country depleting its only renewable resource—a welcome change from earlier gloomy forecasts.

As the value of all new construction activity in the United States, plus maintenance and repairs, climbed to more than $70 billion annually, the 1950 decade experienced less violent swings in annual lumber production volume.

Accelerated growth occurred during the 1950 decade. Softwood plywood was a spectacular performer, with production tripling from 2.6 billion square feet in 1950 to an estimated 7.6 billion in 1959. Fir plywood is now rated as the nation's fastest growing non-defense industry. Exhibiting less spectacular but steady growth were the comparatively new board industries producing particle boards, hardboards and insulation boards.

National production of lumber totaled 368 billion board feet over the ten year period, or an average of 36.8 billion board feet annually.

While chalking up all of these records, lumber has been able to register smaller increases in its wholesale price index since 1947 than shown for nearly any other major construction material. Lumber is the only construction material that experienced six annual decreases in its average price index during this period. During the 1950 decade, corporations in lumber and wood products had a net profit rate averaging 8.2 percent of invested capital, compared with an average of 8.8 percent for all manufacturing corporations.

At the same time, average weekly earnings by employees in the lumber industry have consistently outpaced rises in the cost of living during the past decade. Earnings have risen to a rate one-fifth greater than the consumer price index.

U.S. Imports and Exports of Wood and Wood Products

The estimated total value of United States imports and exports during the calendar year 1959 is shown graphically at the bottom of Figure 1. The need for a balance between imports and exports in many industries is one of deep concern because of its effect on our national economy. In the wood industry the estimated figures for 1959 are as follows:

	(Value in Dollars)	
Group	Imports	Exports
Wood, Unmanufactured	$ 22,515,981	$24,448,773
Sawmill Products (Lumber)	337,403,447	89,602,540
Wood Manufactures	215,858,976	52,704,559
Total	$575,778,404	$166,755,872

It will be noted in the Wood Unmanufactured group our nation's exports exceed imports by $1,932,792 or 8.6 percent. However, in the other two groups the imports greatly exceed exports by ratios of 3.8 to 1 for sawmill products (lumber) and 4.1 to 1 for wood manufactures (wood products).

To analyze further, let us consider the major items involved in each of the three classification groups.

WOOD, UNMANUFACTURED

IMPORTS

Major Items in Group	Net Quantity	Units	$ Value
Christmas trees, evergreen	11,866,731	No	$ 7,003,931
Poles, tel. & telegraph, light, etc.	172,495	No	3,685,648
Mahogany logs	22,511	MBF	2,396,937
Hardwood logs (NES)	24,218	MBF	1,996,172
Philippine hardwood logs	23,469	MBF	1,265,731
Bamboo sticks	——	——	1,099,640
All other misc.	——	——	5,067,922
Total Imports of Wood, Unmanufactured			$22,515,981

EXPORTS

Softwood logs, bolts & hewn timber (NEC)	107,687	MBF	$ 6,058,049
Port Oxford Cedar logs, bolts & hewn timber	39,189	MBF	5,372,186
Hardwood logs, bolts & hewn timber (NEC)	32,330	MBF	3,287,353
Poles-wood, utility, line, new, treated & untreated	108,611	No	2,664,916
Walnut logs, bolts & hewn timber	3,734	MBF	2,181,949
Piling-wood, round, new, treated & untreated	4,314,331	LTF	1,387,363
All other misc.	——	——	3,496,957
Total Exports of Wood, Unmanufactured			$24,448,773

SAWMILL PRODUCTS (LUMBER)

IMPORTS

Western White & Engelmann Spruce lbr.	1,068,222	MBF	$82,922,874
Douglas Fir lbr., dressed	870,229	MBF	58,862,032
Fir & Hemlock lbr., mixed, dressed	421,711	MBF	26,184,840
Cedar lumber & Cedar sidings	241,723	MBF	24,654,406
Northern Pine & other Pine lbr.	215,079	MBF	22,711,883
Other Spruce lbr. (incl. Sitka Spruce lbr.)	227,050	MBF	20,387,014
Maple, Birch & Beech hardwood (except flooring)	115,331	MBF	19,594,120
Philippine type hardwood lbr.	119,919	MBF	17,793,053
Hemlock lbr., dressed	206,087	MBF	17,153,550
Douglas Fir lbr., rough	251,086	MBF	16,503,510
All other misc.	——	——	30,636,165
Total Imports of Sawmill Products (Lumber)			$337,403,447

EXPORTS

Douglas Fir lbr., 5" & over, rough	161,859	MBF	$14,876,899
Douglas Fir lbr., 2" but under 5", rough	105,841	MBF	12,531,319
Oak lbr. incl. wagon plank, except flooring & small dim. stock	63,764	MBF	8,892,418
Ponderosa Pine lbr. incl. Pond & West Yellow Pine	49,763	MBF	4,660,817
Redwood lbr. incl. Cal. Redwood	22,622	MBF	4,431,068
White Pine lbr.	55,847	MBF	4,354,702
Softwood lbr. (NEC)	46,983	MBF	4,179,580
Southern Pine lbr., 2" but under 5", rough sawed or dressed	33,968	MBF	3,757,250
Oak flooring	24,003	MBF	3,756,045
Southern Pine lbr., under 2", rough sawed or dressed	28,886	MBF	3,727,521
Ties, R.R. cross & mine, sawed & hewn, new, hardwood, treated	29,287	MBF	3,233,367
Douglas Fir lbr., under 2", rough sawed or dressed	28,213	MBF	3,072,571
All other misc.	——	——	18,128,983
Total Exports of Sawmill Products (Lumber)			$89,602,540

WOOD MANUFACTURES

IMPORTS

Other plywood	1,193,386,858	SFT	$84,201,877
Manufactures of wood or bark (NES)	——	——	21,960,053
Birch or Maple veneer	496,499,872	SFT	17,341,654
Birch plywood	136,837,741	SFT	14,578,520
Red Cedar shingles	1,465,775	RSQ	13,939,869
Other veneer	567,481,493	SFT	11,767,031
Furniture, wood, other (NSPF)	——	——	10,626,856
Chairs, wood (excl. Bentwood)	2,277,887	No	7,229,017
Red Cedar shakes	634,095	WSQ	6,798,264
Blinds, seats etc. of wood, straw etc.	——	——	3,337,045
Furniture parts	——	——	1,983,242
All other misc.	——	——	22,095,548
Total Imports of Wood Manufactures			$215,858,976

EXPORTS

Furniture & parts, wood or upholstery & wood	——	——	$12,762,039
Wood manufactures (NEC)	——	——	7,017,583
Softwood plywood, exterior type	60,918,472	SFT	6,140,685
Pencil slats	8,931,337	Pencil GR	4,484,565
Millwork, wood (NEC)	——	——	2,399,620
Tight empty barrels, etc. up to 150 gal., KD or set-up, USD	947,103	No	2,191,276
Staves, tight, for cooperage, up to 150 gal. capacity, new-set	213,936	No	2,140,048
All other misc.	——	——	15,568,743
Total Exports of Wood Manufactures			$52,704,559

ABBREVIATIONS

BBL—Barrel
BFT—Board Foot
Gal—Gallon
GR—Gross
LFT—Linear Foot
MBF—Thousand Board Feet
NEC—Not elsewhere classified
NES—Not elsewhere specified
NO—Number
NSPF—Not specially provided for
RSQ—Roof Square
SFT—Square Foot
WSQ—Wall Square

Wood Imports Exceed ½ Billion Dollars

It will be noted imports of all three wood groups total $575,778,404 and exports total $166,755,872, resulting in an import-export ratio of almost 3.5 to 1. It will also be noted that numerous species of wood grown and readily available in the United States are among major import items. Recognizing that the over ½ billion dollar import volume may be relatively small compared to that of other industries, yet it is a very substantial figure and the need for a balance between imports and exports in all industries is of utmost importance because of its impact and direct bearing on our nation's economy.

Foreign Trade Policy: Time for a Change?

Our foreign trade policy and America's role in world commerce was the subject of a timely address by Horace B. McCoy, director of the Trade Relations Council of Washington, D.C., delivered at the American Hardboard Association's annual meeting last November. His timely views on the subject illustrate the deep concern of many individuals in this matter and are most enlightening and worthy of consideration.

"A short time ago the United States joined the other members of the General Agreement on Tariffs and Trade for a parley in Geneva. Earlier, the State Department drew up a list of more than 2,000 products—many of them competitive with American products—and announced we are prepared to make tariff concessions on the listed items. In the 12 year history of GATT, no nation has more conscientiously pursued a policy of tariff surrender than the United States, and we let our trading partners know that we were ready to yield further in the 1960-61 negotiations.

"What happened?" continued McCoy. "No less than seven other countries sounded a chorus of criticism because the U.S. Government had not seen fit to lift its quotas on certain farm commodities."

Adding to the irony in Geneva is this fact: "The leading tenors in the chorus of critics represent countries which themselves employ rigid controls on imports to protect their agriculture, as well as other controls to protect their economies from foreign penetration.

"As the all-time champion giveaway nation—money, tariffs, military aid, industrial know-how, and so forth—we are neither loved nor admired. Instead, we are the 'patsy' and scapegoat for all of the world's political and economic ills.

"Many of us have been saying for years that the so called 'reciprocal' trade is actually a one-sided giveaway program, with our trading allies and commercial competitors on the receiving end. But no matter what you call it, the valid test is—has it succeeded? Has it advanced our national interests? Has it made friends for us?

"Ten years ago those who championed repeated tariff slashing ranted about the dollar gap. Our exports were topheavy, they argued: we have to open the gates to more imports. So they continued to hack away at tariffs, and imports climbed steadily. In 1959 they reached a record level of $15.2 billion. In the process the dollar gap disappeared—only to be replaced by the gold crisis of 1960. While we have been helping others help themselves to bigger shares of the American market, we have also been dealing out our resources in the form of generous loans, direct grants and other aid. We have established and still maintain a fantastically expensive network of military bases on foreign soil. We have dipped deeply into our private investment capital to set up industrial empires abroad. Result? A massive total deficit exceeding $10 billion in our balance-of-payments over the past three years. Nearly half of that deficit was paid in gold. Our gold supply has dwindled to $18.5 billion—and our creditors abroad already hold convertible dollars totaling more than $20 billion.

"The single bright spot in the otherwise bleak balance of payments picture is our continuing export surplus," stated McCoy. "We still sell more abroad than we buy, and obviously the bigger the surplus, the smaller our total deficit when all other factors—foreign aid, military spending, private investment, and so forth—are added to the books.

"But last year the gap between exports and imports was only $1.1 billion, lowest since World War II. The gap will widen somewhat in 1960—thanks to heavy sales of cotton and jet planes—but prospects are that it will shrink again in 1961," according to McCoy.

In concluding his address, McCoy outlined 6 points he recommended to establish a new, updated and geared-to-the-times Trade Agreements program. The first two points were:

1. We must control the volume of imports wherever necessary to safeguard basic levels of domestic production, provide incentive for industrial expansion, and protect strategic industries vital to our national security.

2. We must move swiftly and vigorously to prevent dumping of competitive products into the domestic economy, without the injurious delays so common today.

Data and information was derived from a review of the following Industrial Reports issued by the U. S. Dept. of Commerce, Bureau of the Census, for the year 1959.

Title	Report No.	Date Released
Lumber Production and Mill Stocks 1959 and 1958	Series: M24(T)59-1	Jan. 19, 1961
Softwood Plywood and Veneer 1959	Series: M24H-09	June 27, 1960
Hardwood Plywood: Market Shipments—Summary for 1959	Series: M24F-09	June 9, 1960
Red Cedar Shingles 1959	Series: M24C-09	June 21, 1960
U.S. Imports of Merchandise for Consumption Calendar Year 1959	FT-110	April, 1960
U.S. Exports of Domestic and Foreign Merchandise (Part I) Calendar year 1959	FT-410	March, 1960

"How We Work With Designers"

an interview with Gene Lusa

Plant Superintendent Quality of California Furniture Co.

by Gordon L'Allemand

In every marketing program the designer is rapidly becoming a key figure. The difference between profit and loss in the furniture industry is in direct ratio to the co-operation between the designer and the manufacturer. How "Quality of California," Los Angeles works with its designers is a good example of co-operation that contains many points of merit.

Discussing design merits of new sketches and color renderings at "Quality" are superintendent Lusa, designer C. C. "Kim" Kimerly, sales manager F. E. Morton, and designer Monte Johnson.

Design, color impression, and fabrics are the most important qualities that make those vital first impressions and sell or fail to sell furniture to customers. Furniture lacking quality in these three items fails to make that first competitive attraction to the buyer, and failing in these does not sell.

Quality of California rates design as tops. Therefore, the how and why of relations with designers is all-important. When new designs are needed each project includes group decisions made by the following: sales manager, designers, plant superintendent and the construction foreman of their woodworking department.

Designers In On Initial Planning

According to Gene Lusa, superintendent, Quality of California, his company likes to come out with new furniture designs yearly. Sometimes chairs, divans and the like, which have been selling well, are redesigned in order to assure continued success. In either event C. G. "Kim" Kimerly and Monte Johnson, the two designers Quality works with most frequently, are called in for initial planning sessions.

They are told to make up some black and white sketches and color renderings of fresh ideas on upholstered chairs and possibly a couple on divans. Ideas such as making the chairs a little wider and perhaps a bit lower are given to both Kimerly and Johnson along with some ideas on fabric tones and patterns. In the ideas on the divans the designers probably would be asked to consider something for apartments and smaller homes.

Group Decisions Work Successfully

Group decisions for new designs have worked out very successfully for us. Participating in all design decisions are the following: H. J. and Nat Malerstein, father and son, president and vice-president–representing management; designers, Monte Johnson and "Kim" Kimerly; F. E. Morton, sales manager; Gene Lusa, plant superintendent in charge of production; and Charles Givan, foreman woodworking department, who discusses structural and construction problems. In considering the important problem of "How a furniture manufacturer works with designers" we asked each member to tell his part in making design decisions.

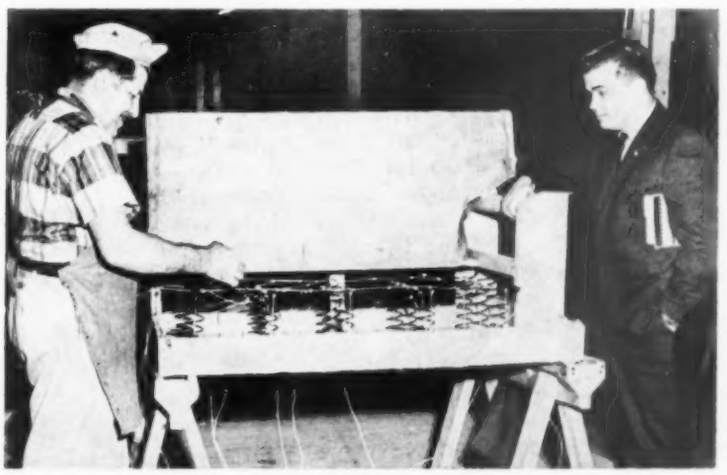
Managements Viewpoints

Representing management is Nat Malerstein who informs us that, "the decisions on new furniture designs here at Quality are most important to us. Our company is the leader in the upholstered transitional furniture field in the southwest featuring overstuffed sofas, chairs, divans, and sectional pieces. We know there are manufacturers who make all of the decisions on designs–ignoring the advice of designers. We don't feel that way. Although management must give the final stamp of approval to new designs, we do so only after carefully considering the advice of our trusted "team"–sales manager, designers, plant superintendent, and woodworking department foreman.

"All of us base our opinions on a study of markets in the U.S. and abroad, the pulse of the buying public, and general progress of design in the

Woodworking foreman Charles Givan (left) is briefed by Lusa on details of new chair design.

Designer Monte Johnson watches the springing of a chair he designed.



Discussing an upholstery idea with a workman, "Kim" Kimerly follows his design into production.

Woodworking foreman Givan keeps a constant check on the progress of new designs.

furniture field. My father and I must also pay heed to the prevailing economic conditions."

Sales Viewpoints

Now a report from F. E. Morton, sales manager: "When considering new furniture designs we want something fresh and different. The market is studied throughly so that we know what is selling and what isn't. I am constantly on the alert for design ideas that will give our company a chair, a sofa or a divan that our competition doesn't have, something we can beat them with to the market.

"The requests and reactions of proprietors of furniture stores are studied and particularly those of women customers. I watch current and future economic trends. Are we in tight buying times or entering a recession when people are afraid to spend? Can we expect boom times during which people are happy to buy new things? These are all very important factors in design decisions.

What Attracts Women?

"What attracts a woman's eyes to a piece of furniture in a sales display? The cover, of course. So covers and tapestries are of prime importance, these and the over-all design are what 'Mrs Jones' will buy. Today every housewife is an amateur decorator. She reads about color, design, and style trends in all of the women's and home decorating publications. Many women consider themselves design and decorating experts.

"We know that color schemes impress women buyers first and since they buy 95 percent of the furniture sold today this is a very important consideration. Styling is the second consideration in buying—if it is smart, clean, simple—it gets the buying nod.

Comfort Gaining In Importance

"Comfort is the third consideration. Within the last 18 months we have noted that comfort has become much more important than formerly. Women are no longer buying light scale, off-the-floor models because they feel this does not give the maximum in comfort. All of these factors receive my consideration in working with our design team in an effort to produce a profitable easy-to-sell line."

The foregoing considerations are constantly influencing Morton in his advice on new design decisions when he is called to the plant for conferences. Management is given his studies on what the design and sales situation is on the local, national, and international market scenes. In other words, every marketing factor must be considered.

Study Competitive Designs

Furniture displays of the other manufacturers are carefully studied at the Los Angeles Home Furnishing Mart, plus those at the San Francisco and Chicago Marts. Trends are constantly evaluated from a competitive viewpoint. Household, design, and furniture magazines are read by Morton as part of his effort to supply proper design pointers. Even political developments influence his thinking about how the American housewife will react to various designs.

What Do Designers Think?

The designers doing work for Quality of California, C. G. "Kim" Kimerly and Monte Johnson, when asked this question came up with some very pointed observations that can be applied to almost every field of design, and in particular the entire furniture industry.

A graduate of Carnegie Tech and the Chicago Art Institute, C. G. "Kim" Kimerly is the son of W. L. Kimerly a famous furniture designer. Kimerly, with a wealth of design experience with such houses as Widdicomb Co., Jamestown Lounge, Crown Upholstery Co., and many others has this to say on the subject:

"A designer must know the furniture manufacturer's problems and his facilities. The more management confides in designers the better job they can do. I always say 'Tell me the problem you have, and I'll work it out for you.' If there is any phase of design or construction where a manufacturer needs his product strengthened, his designer should solve the problem. A manufacturer must make his design needs clear to me.

Designer Should Have Direction

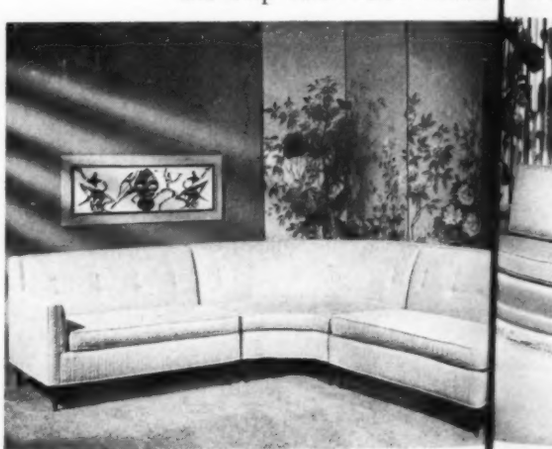
"Unfortunately," Kimerly continues, "most of them don't want to be downright specific. Too many say, 'You're the designer. Bring me ideas.' —the world-on-a-platter slant. From a designer's point of view I feel that furniture is definitely becoming more conservative, simpler in lines, plainer, and not so broken up. There seems to be a tendency towards more luxury, softer lines and feeling."

Time A Necessity

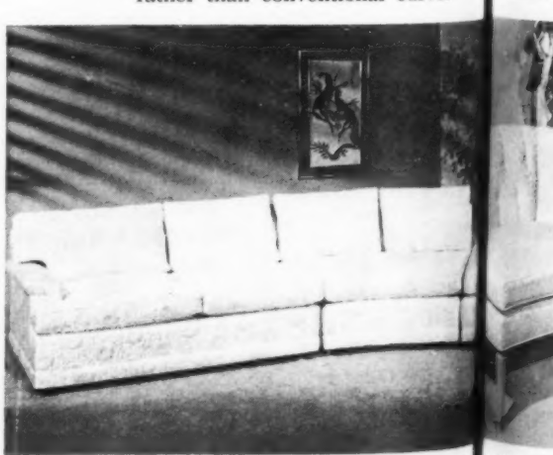
Quality's other designer Monte Johnson says: "One of the big wastes of furniture designing is that many manufacturers wait until too close to

Contemporary chair by "Quality" with "picture frame" back—moderately priced—excellent sales.

Matching chairs—high styling with exposed wood and deep foam rubber cushions.



Streamlined sectional—unusual angled shape rather than conventional curve.



Sectional by "Quality"—featuring down-and-feather pillows, Marshall cushions, deep puff custom quilting.

Lavish 10 foot divan—inlays in base and craftsmanship in construction spells "Quality."

French Provincial sofa—carved legs deep-tufted back over a "Quality" hand tied base.

Elegant tapered back sofa—loose pillow back foam and dacron filled—classic styled legs.

Slender curves of wood legs compliment the deep tufting of the backs in the design of matching chairs by "Quality."

market time to consider new designs, then rush them into construction, leaving no time to make proper corrections. Many firms show a tendency to put all of their eggs in one basket at market time, rushing out 8 or 10 designs rather than concentrating on just a few. Doing too many designs at one time does not allow proper execution and exploitation that will contribute to success.

"Design should not be an annual or twice a year deal, but rather a constant project. Special designs should even be kept in abeyance for economic situations. In times of slow business the first thing a dealer asks a salesman is 'What's new and fresh in your line?' "

Must Trust Designers

"The biggest complaint we have is that manufacturers do not trust their designers—even after careful studies are made, along with sketches and color renderings. Too frequently they fail to see the potentials and insist on their own point of view. The best selling designs are the more conservative designs, well engineered, well proportioned, with a fresh design approach—and NOT the radical or too overpowering designs many manufacturers look to designers for."

Ideas Considered By Group

After Quality Furniture Co. Plant Superintendent Lusa has briefed his designers on what his company wants in new designs they bring in pencil sketches and color renderings for consideration by the entire group. At this Point, Nat Malerstein, Morton, Lusa, Kimerly, Johnson, and woodworking department foreman, Charles Givan meet at the plant—the sketches and renderings are spread out on a large table and the discussion starts as to just what designs should be purchased and what changes should be made.

Questions brought up include: "Are people interested in round backs, square backs, flair backs, low legs, broader upholstered chairs? Management and Gene Lusa give their impressions and ideas. The designers and Morton consider all angles. Following this meeting the designers will probably rework their sketches and renderings to conform to the suggestions made by the group.

"In conferences with our designers," says Gene Lusa, "we get their ideas on color trends, fabric designs, and the general treatment of the tenatively accepted designs. Usually two sessions are enough for the designs to be brought to agreed specifications. We buy a few designs on an outright price basis, but most designers prefer to work on a percentage basis—so much on each piece of furniture sold from their design."

Discuss Details With Woodworking Foreman

Once a design is accepted, Lusa discusses it in a session with woodworking foreman Givan. Givan recieves the full dimensions of the new chair or divan—size of base, pitch of back, where rails should be. They go over the complete construction details and Givan makes any changes needed in construction. Size is considered in relation to the cushions and springing.

As a final step Givan draws up the frame construction details in actual size. From these drawings all of the shop patterns are made up on ¼" plywood and numbered. The legs and other similar parts will have patterns made up of solid wood.

In the woodworking and assembly departments the hardwoods are cut, shaped, sanded into the frame parts. Next the parts go to sub-assembly for glue-up and clamping. Final assembly brings together all of the frame sub-assemblies and other parts which are double doweled and glued for plating operations.

Carved and tapered legs and all exposed parts are completely finished before springing and upholstering. The chairs and divans are then moved into the springing department and then into upholstering. At this point all of the newly designed furniture is finished except for hardware touch-up and final inspection. As soon as these last few items are taken care of the new furniture is ready for shipment to dealers and to company display rooms.

"Quality of California" maintains a complete line of all their upholstered furniture at the Los Angeles Home Furnishing Mart and the San Francisco Mart.

Design Handling Applicable To Many Products

While we have been dealing only with upholstered furniture the same considerations in design can apply to case goods and other wood products. However, in these instances there probably would be a shift in emphasis from color to design although finish tone and color of exposed wood has taken on a new meaning.

Actually, the handling of the design element at Quality of California is a practical form of "total marketing" in which every decision regardless of what it concerns is an important element in the over-all profitability of a product.

CHOOSE THE RIGHT WOOD

By Benson H. Paul

DIRECTION OF GRAIN

Grain in wood arises from two structural characteristics of trees: (1) the annual growth layers added to the outer surface of the woody cylinder, year after year, and (2) the orientation of the wood fibers constituting the growth layers, whether parallel to the main axis of the tree or deflected from it, as in spiral grain.

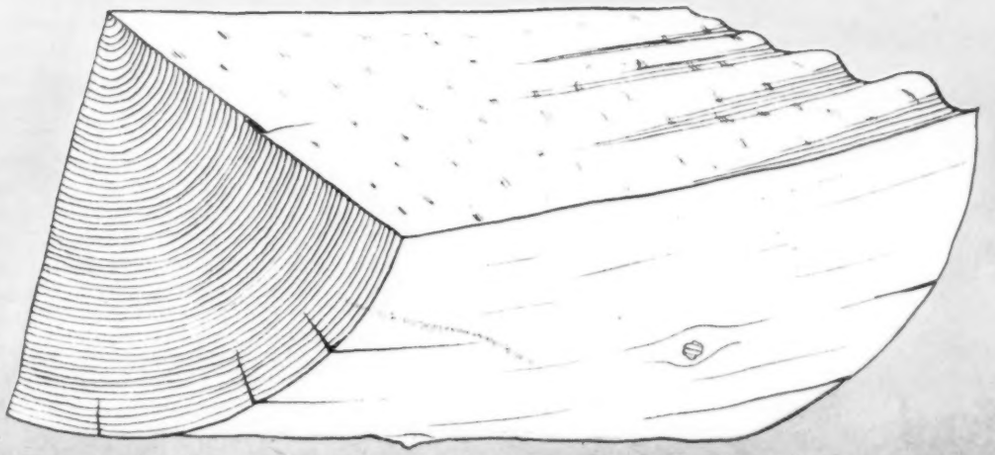
Cross Grain Weakens Strength Of Wood

Cross-grain in wood, originating in either way or from their combination in a piece of timber, has a decidedly weakening effect on certain strength properties of the wood, particularly in bending and impact or toughness. Severe cross grain, therefore, cannot be tolerated in pieces of wood used where failures are a serious hazard to safety. Cross grain must not be permitted in such items as ladder rails, ladder rungs, scaffolding and handles of striking tools. A force suddenly applied to a piece containing cross grain is likely to cause abrupt breakage that may result in severe injury or even loss of life. Correct specifications and careful inspection to eliminate serious cross grain is essential for such uses. For convenience in discussing cross grain in wood and timber, it is termed diagonal grain when it occurs on radial surfaces, where it is most likely to be seen by the pattern of the growth rings. Cross grain on tangential surfaces is termed spiral grain, since it usually results from the direction of the wood fibers with respect to the longitudinal axis of the tree from which it was cut.

Inspection For Diagonal Grain

Inspection for diagonal grain on radial surfaces is fairly easy with woods that have a prominent growth-ring pattern, as the alignment of the rings with the edges of the piece shows the degree of agreement on that face. Deviation of grain in such cases may result from the common practice of sawing tapered logs parallel to the pith rather than the bark or outside of the log. Butt logs with a large flare, crooked logs, bulges, and distorted grain around knots are the sources of diagonal grain. When inspecting pieces of lumber first examine the radial surface for diagonal grain. If it exceeds the permissible limit, further examination on the tangential faces is unnecessary, since the piece must be rejected anyway.

Diagonal grain on tangential surfaces may be seen by the pattern of intersections of annual rings with the surface; they may occur as ellipses or parabolas. If there is no truly tangential surface in a rectangular piece then the rings will come to a point on the corners nearest to and farthest from the center of the tree. Diagonal grain shows on both tangential and radial surfaces by the breaking out of chips when a piece is planed against the grain of the wood. Seasoning checks that extend



Spiral grain as seen by direction of checks on the exterior of a tree and by deflection of grain on a split radial surface. (Forest Products Lab.)

Splits show grain direction in rotary cut veneer. (Forest Products Lab.)

radially and follow the grain longitudinally, are helpful in determining the slope of grain in rough lumber. Wood rays appearing as lines or dashes on tangential surfaces show the slope of grain since the fibers run parallel to the rays. The use of rays, however, is difficult unless the surface examined is truly tangential.

Simple Methods For Determining Slope of Grain

Slope of grain on a tangential surface can be detected by using the so-called ink test, whereby ink or some other free-flowing, colored liquid is spread in a line across the surface. As the ink or dye spreads along the fibers fine lines that show the general direction of the fibers will appear. The scribe test is another means of detecting slope of grain if slight scratching of the surface is not objectionable. A sharp-pointed scribe drawn along the surface under slight pressure will follow the grain direction leaving a surface mark from which the slope of grain is measured. Another test is the "pick" test made by prying out a small bundle of fibers using a stiff probe. The direction of the torn fibers will indicate the grain with reference to the sides of the piece. The pick test may be used also on radial surfaces.

Computing the Combined Slope of Grain

When both the radial and the tangential surfaces show considerable diagonal and spiral grain then the true or combined slope of grain may be greater than that of either surface. The combined slope of grain may be computed from the following formula:

$$\text{Combined slope of grain} = \sqrt{(\text{slope of spiral grain})^2 + (\text{slope of diagonal grain})^2}$$

Example—Slope of spiral grain, 1 in 20; slope of diagonal grain 1 in 25, then the combined slope of grain equals 1″ in 15.6″.

If the end of a piece may be mutilated by splitting off a corner in an exact radial direction, then the combined slope may be measured from the direction of the split with respect to the sides of the piece.

Manufacturers may specify the permissible slope of grain in wood for a given use. Where the equivalent strength of straight-grained wood is required, the allowable slope of grain may be as little as 1 inch in 20 or 1 inch in 25 inches. A slope of grain of 1 inch in 12 inches may reduce strength in bending by as much as 30 percent.

For more detailed information on slope of grain, see Forest Products Laboratory report No. 1585.

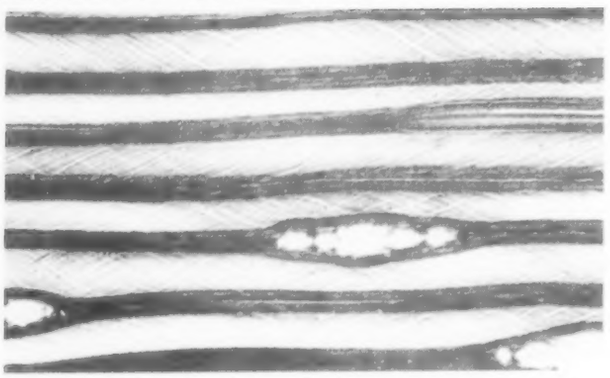


Fig. 1. Diagonal checks in the walls of compression wood fibers indicate high shrinkage along the grain. F.P.L.

Longitudinal Shrinkage of Wood -its causes and effects

By Benson H. Paul

"Longitudinal Shrinkage of Wood" presents a detailed discussion of causes and effects of lengthwise shrinkage in lumber. Ordinarily the shrinkage or swelling of wood along the grain with moisture changes, drying or wetting, is so small that it goes unnoticed. Although radial and tangential dimensions of wood are expected to change as much as 5 and 10 percent, respectively, from the fiber saturation point to a moisture free condition, longitudinal shrinkage is only 0.1 to 0.3 percent. When lengthwise shrinkage is more than 0.3 percent, the cause may be found in some abnormal characteristics of wood structure.

Effects of Excessive Longitudinal Shrinkage

Evidence of too great lengthwise shrinkage appears in lumber after drying as crook, bow and twist or as shortening of some members of a structural unit, thereby throwing other parts of the unit out of alignment. Long boards or joists that dry out after fixed in place may actually develop cross-breaks in the process of shrinking, or butt joints may open up, as frequently happens, when siding is applied with a moisture content that is too high. Of course with dry lumber the reverse, swelling takes place with the absorption of too much moisture.

Causes of Longitudinal Shrinkage

Shrinkage of wood lengthwise occurs mainly when the fibrils, which are components of the walls of wood fibers, are oriented away from the long axis of the wood fiber of which they are a part. The larger the angle between the fiber axis and the fibrils of its walls, the larger the lengthwise dimensional change with drying or wetting will be. Refer to Figure 1.

Occurs in Many Types of Wood

Longitudinal shrinkage occurs in many types of wood. Its prevalence and intensity depends upon many conditions of growth affecting trees or parts of trees. Perhaps, lengthwise shrinkage has been investigated more thoroughly in compression wood (known as "rotholz" in Europe) than in other unusual structural forms of wood. It occurs characteristically in coniferous species where it is formed on the under side of branches and leaning trunks of trees. Portions of growth rings composed of compression wood are wider than parts of the same rings having normal wood, thus the cross-sections of trees become eccentric, an indication of the presence of compression wood.

In the limber stems of young trees bent over by storms compression wood formation has a straightening effect and after the bent shoot becomes vertical the formation of compression wood stops.

In hardwood species the abnormal wood forms on the upperside of branches and leaning tree trunks. It is known as "tension" wood and, as is the case with compression wood, the portion of growth rings containing tension wood becomes wider. Again as in the case of compression wood, excessive lengthwise shrinkage in drying causes cross-breaks and severe warping.

Results of a recent study, "Significance of Tension Wood in Furniture Cutting of Red Oak," are presented in Forest Products Laboratory Report No. 2193.

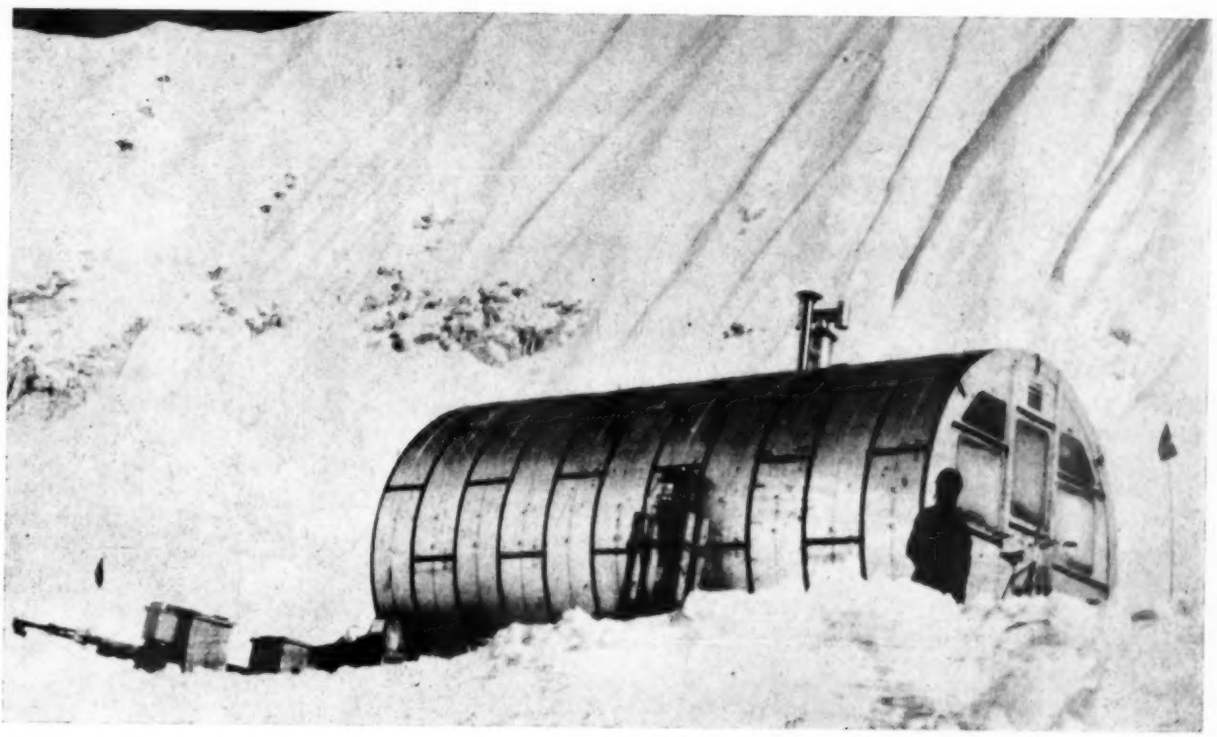
High longitudinal shrinkage takes place also in very light wood. For example, in balsa shrinkage amounted to 0.6 percent in some very low density pieces when they were dried from a soaked to a moisture-free condition. In heavier pieces of the same planks shrinkage was only 0.1 percent. Wood of low density, comprising wide rings near the center of coniferous trees when predominately of spring wood, shrinks much more lengthwise than adjacent narrow-ringed wood having a higher percentage of heavy summerwood. Thus boards and planks partly of wide-ringed and partly of narrow-ringed wood bow and crook while drying.

Apparent longitudinal shrinkage takes place in boards when the grain direction of the wood is not parallel to the edges of the board. In such cases, a transverse shrinkage component adds to the shrinkage along the length of the piece. In a long board or timber the shortening effect of shrinkage along the grain is very noticeable because of the accumulated shrinkage of its entire length. Shrinkage of 0.5 percent over a length of 100 inches amounts to one-half inch. If used in short lengths the shrinkage of individual pieces would be of small magnitude and less conspicuous.

The reports mentioned include references to a number of investigations as well as charts, diagrams and illustrations.

From Forest Products Laboratory Report 1093 (Revised)

We received the below picture post card from our Contributing Editor Nelson Nash. He writes: "Dear Boss: Wish you were here with us, 19,200' up on good old Himalayan Mongbo Glacier. The weather is absolutely delightful, an ideal 40 deg. F. below zero. We don't care tho. Our Birch Plywood Castle-in-the-Sky keeps us well insulated. Tell all our readers WOOD IS TOPS . . ."



PLYWOOD ON TOP OF THE WORLD

DEAR BOSS:–

Well, here I am with Sir Edmund Hillary's Himalayan Expedition, on top of good old Mongbo Glacier.

My mail just caught up with me, and I was very happy to receive the January issue of Hitchcock's WOOD WORKING DIGEST. Thanks for printing my story on page 35 about the Birch Plywood Hut and Laboratory in which we live up here–19,200 feet high.

To quote Sir Edmund, the hut is "Delightful!" Outside, the temperatures are around 40 degrees Fahrenheit below zero. But inside the hut we turn our heater on low, because our plywood walls keep us well insulated.

Everything worked out splendidly. You will recall that our Birch Plywood Hut is completely portable and it consists of 100 separate curved, interlocking plywood parts. It is 22 feet long and 10 feet high. We assembled it in the fantastically short time of only 4 hours. This is like running the mile in under 3 minutes.

I don't have time to write a long letter, because it's my turn to go out and hunt the Abominable Snowman. Therefore, I am just sending you this majestic picture of our castle-in-the-sky.

I am sure that all our readers will take renewed pride in the marvelous and versatile properties of wood and rededicate themselves to discovering new uses for it.

Yours Up-In-The-Clouds,

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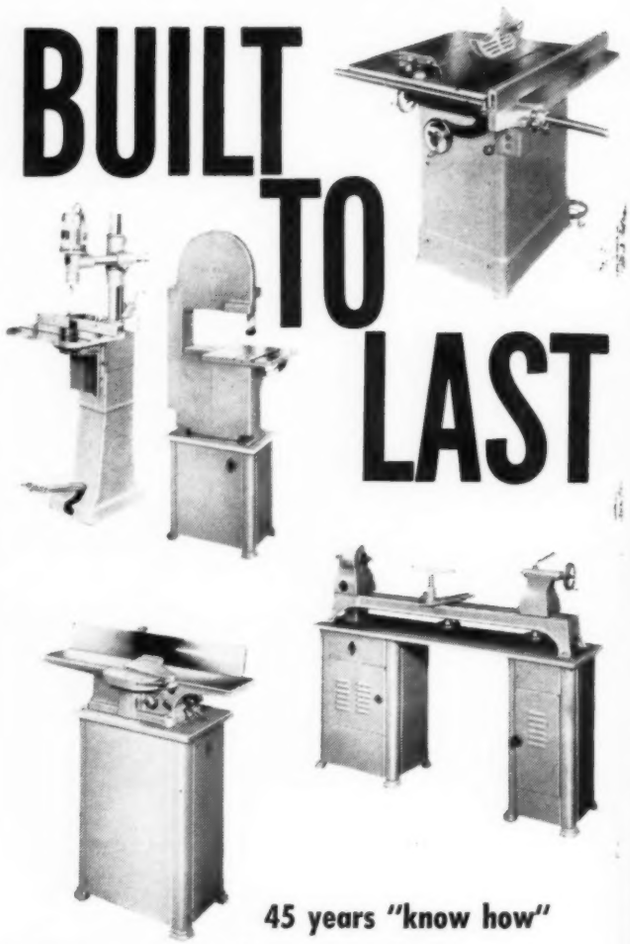

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A roundup of day to day in-plant problems and how they were handled by management men. Each incident is taken from a true-life grievance which went to arbitration. Names of some principals involved have been changed for obvious reasons. Readers who want the source of any of these cases may write to Hitchcock's WOOD WORKING Digest.

Can you fire an employee for fighting with his foreman after working hours?

What Happened:

John Herbst, a union steward, had been feuding with his supervisor for some time. There had been several incidents. John had been disciplined for smoking in "no smoking" areas and for drinking beer while on errands for the company. John said the boss was picking on him—since other workers smoked in the same areas and he only drank beer during his lunch hour.

One day John heard that his foreman was encouraging employees to leave the union. A company official overheard John say that he was "going to get that -------." That night the two men happened to meet outside a supermarket. John asked his boss "How does it feel to be a rat?" and told him to "put down your groceries and let's have it out right here and now." Hot words were tossed about but nobody struck a blow.

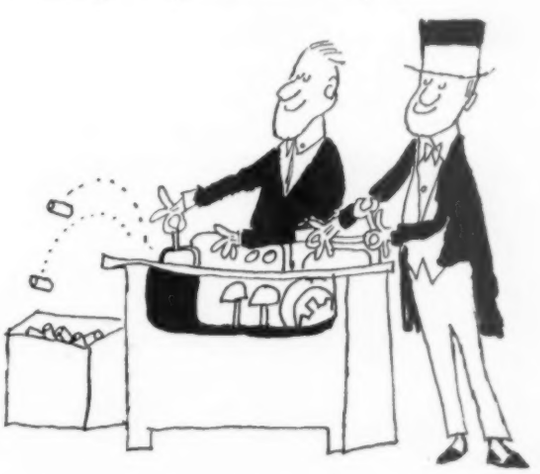
The next night the foreman ran into John at a parking lot. The employee started a fist fight and got a bloody nose. When John recovered from his injuries, he returned to work. He was told that he had been discharged for fighting with his foreman. John argued that the discharge was unfair because:

1. The discharge was part of the supervisor's discrimination against him for his union activities.
2. He was the one who had been hurt when the supervisor kicked him—and the company did not discipline the supervisor.
3. The company does not have the power to discipline him for activities committed after work and away from the company premises.

Was John: RIGHT ☐ WRONG ☐

What Arbitrator Russell A. Smith ruled:

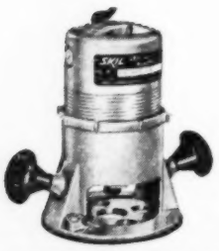
"The established principle is that the employer does have disciplinary authority with respect to altercations engaged in by employees off premises and outside working hours. This altercation arose out of the relationship in the course of the employment of the two men and with respect to matters concerned with their employment. Even though the supervisor's assault was certainly improper, the union has no contractual or other basis for questioning management's relations with its supervisors, or for demanding that disciplinary action shall be meted out uniformly and in precisely the same manner as between members of supervision and employees represented by the union. The discharge of John Herbst is proper."



Can management use supervisors to prove that a work quota is reasonable?

What Happened:

In 1957 the company installed special machines. Tentative quotas were set during the following months while several improvements in the operation were made. In the first two months of 1959 the company



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Router motor also powers No. 3650 Plane Attachment—to let you add a portable power edge plane to your shop.

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NO FUMBLING FOR "ON-OFF" SWITCH. Motor housing does not turn when tool is adjusted for depth. Recessed switch is always in same location . . . a big safety plus!

BUILT-IN CHUCK LOCK lets you change bits safely, more easily with only one wrench.

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made comprehensive studies of the operation, and new standards and quotas were decided upon.

The employees constantly failed to meet these work quotas. They said that the standards were impossible. Management issued disciplinary reprimands. The dispute continued at a stand-off. Then the workers struck for four days. The strike was called off—although nothing was done to solve the problem. The employees continued to insist that the quotas were impossible.

The company decided to have supervisory men run one of the machines for a full shift under standard conditions—to convince the employees that the quotas could be reached. Time-study experts were present to observe the operation, but there were no hourly-rated workers on the scene. The company had notified the union of its plan. The supervisory men made 98% of actual standards—or 127% when down-time was counted. Because of the excessive down-time caused by tool troubles, the quotas were adjusted somewhat.

The following week the union charged that the company had violated the agreement by having supervisors do bargaining-unit work. It asked the company to pay the appropriate production workers earnings lost from this violation. The union argued:

1. The agreement provides that supervisory personnel will do bargaining-unit work ONLY when performing "necessary function of instruction or assistance to employees—determining the operating characteristics of new or revised equipment or processes—or in an emergency—or for experimental purposes. It is recognized that scientific, research and development personnel may perform manual work when such is essential to effective completion of the job."
2. There was no "instruction" of employees; no "new or revised equipment or process"; no "emergency"; no true "experimental purpose"; and no work "essential to effective completion of the job."
3. The purpose of the company's action does not bring it under any of these exceptions.

The company refused the union demand and argued:

1. This work was done on Saturday and no employees lost any scheduled hours of work.
2. This work was proper. Its purpose was to show that the quotas could be made, and to see how the machine worked.

Was The Company: RIGHT ☐ WRONG ☐

What Arbitrator Whitley P. McCoy ruled:

"I think that the company did a wise and sensible thing in an effort to settle a disrupting dispute. Its only error lay in not scheduling the regular process inspector to observe and be convinced. If it had done that, the case would have come under the 'instruction' rule. The company seems to rely heavily on the fact that this work was done on Saturday. If the bargaining-unit work is performed by supervisors and none of the exceptions fit, it is immaterial whether it

is performed on Saturday, Sunday or Wednesday. No exception in the agreement fits the work performed. The remedy is to pay the regular operator and process inspectors as if they had been scheduled to observe the operation. The grievance is upheld."

Can you fire an employee for stealing when the criminal charge against him has been dismissed?

What Happened:

The plant-protection department received a phone call which hinted that Harry Smith had stolen some materials from the company. Management asked a deputy sheriff to search Smith's home. One item was found which had the company initials stencilled into it.

When Smith was questioned, he first admitted—and then denied certain thefts. His son-in-law's testimony was damaging. "Sure Pop took some things from the company. Why, you can see the cut in the company's fence where he passed them through." When the plant-protection crew investigated, they found the cut in the fence.

The company filed criminal charges against Smith, but these were dismissed for lack of sufficient evidence. At the same time, the company suspended—and then discharged Smith. He protested his discharge indignantly:

1. The dismissal of the criminal charges against me shows the company's accusations aren't true.
2. The items which were supposed to be stolen could all have been part of the batch of used items which I purchased.

The company supported its disciplinary action by arguing that it has the right to make its own assessment of the evidence against the employee.

Was The Company: RIGHT ☐ WRONG ☐

What Arbitrator J. A. C. Grant ruled:

"The company is justified in asserting its right to evaluate the evidence itself. The district attorney's decision not to prosecute frees the accused of the criminal charge, but cannot shield him from disciplinary action by his employer. Harry Smith was dismissed for proper cause."

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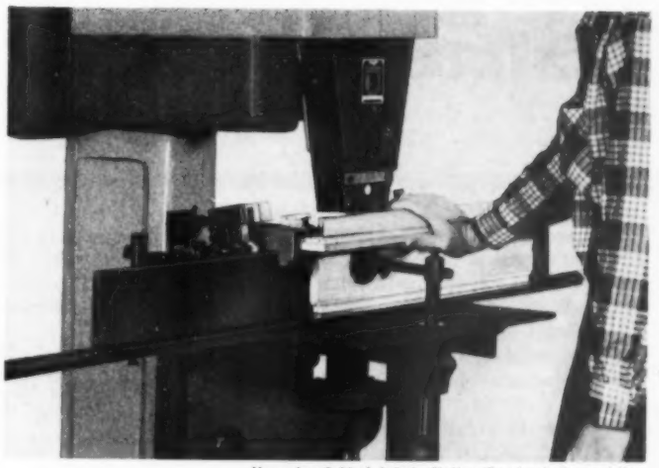
Window Frames!



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Here's the **Auto-Nailer®** which revolutionizes window frame production with greatly reduced costs . . . greatly improved quality. The secret lies in using assembly line practices: **Auto-Nailer** makes its own nails from a coil of wire and drives 145 per minute with incredible precision. It has a unique holding fixture which positions the jamb, blind stop and casing and clamps them together while they are being precision nailed into one **solid** unit. The result is jamb assemblies of perfect uniformity . . . easily combined into complete window frames **without** hand-fitting. Here is true **automation** economy for your window frame production. Quick, easy, accurate nailing solves production problems . . . relieves operator-tension . . . brings a new high to quality and a new low to costs. Accepted in Commercial Standards CS190-59, CS204-59, CS205-59.

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The South Presents a "Blueprint for Progress"

"Where do we go from here?"

Some 30 years ago—when so-called experts were predicting a dire future for the Southern Pine lumber industry—the South's lumbermen might have asked themselves that question and not known the answer.

Today they do. "New Orleans."

As this issue of HITCHCOCK'S WOOD WORKING DIGEST reaches its readers, thousands of lumbermen are already in the famous "Crescent City" preparing to spend April 7, 8 and 9 viewing the latest and the newest in modern lumber machinery and equipment.

The event is the Southern Pine Association's 1961 Machinery Exposition, bigger and better than any of the five already held since 1950.

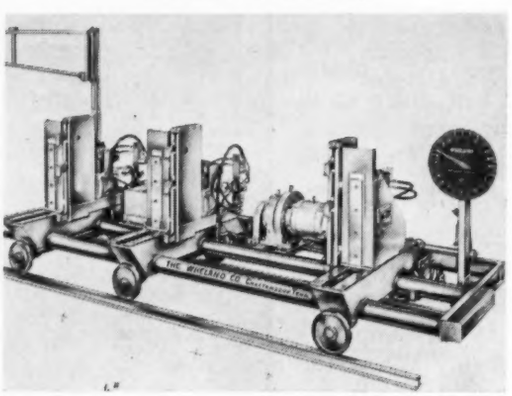
Many striking innovations in logging and lumbering equipment are being presented for the first time this year as upwards of 100 leading American machinery manufacturers and equipment suppliers plus several foreign concerns display their products at the New Orleans show.

Automation has found a secure place in the lumber industry. To prove it, the Exposition is presenting such equipment as automated timber harvesters, where human hands never touch the trees. Demonstrations include bulldozers, heavy lifting equipment, and chain saws.

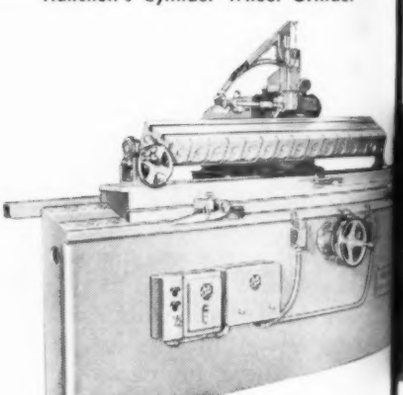
A variety of saws, all kinds of hydraulic and electronic devices, new types of debarkers and chippers, new material handling equipment, and many other labor-saving devices are on display. Equipment especially designed for the small sawmill operator as well as for the medium and large producers is being shown.

Kohler-Joa's Double End Tenoner

Wheland's Sturdi-Carriage



Hanchett's Cylinder Wheel Grinder



List of Exhibitors—1961 SPA Machinery Exposition

Acme Steel Company, Chicago, Illinois
Alarm Signal Company of Texas
Pasadena, Texas
Allis-Chalmers Manufacturing Company
Milwaukee, Wisconsin
American Red Cross, New Orleans, La.
Armstrong Manufacturing Company
Portland, Oregon
Atkins Saw Division, Borg-Warner Corp.
Indianapolis, Indiana
Battelle Memorial Institute
Columbus, Ohio
Berry Hydraulics, A Division of Oliver Tyrone Corp.
Corinth, Miss.
Joe H. Brady & Associates
Birmingham, Alabama
Budow Machine & Manufacturing Co., Inc., Birmingham, Alabama
Carolina Saw & Equipment Company
Shelby, North Carolina
Carthage Machine Company
Carthage, New York
Caterpillar Tractor Company
Peoria, Illinois
Chapman Chemical Company
Memphis, Tennessee
Chipper Machines and Engineering Corp.
Portland, Oregon
Clark Equipment Company, Construction Machinery Division
Benton Harbor, Michigan
Clark Equipment Company, Industrial Truck Division
Battle Creek, Michigan
Corinth Machinery Co. & American Sawmill Machinery Co.
Corinth, Mississippi
Corley Manufacturing Company
Chattanooga, Tennessee
John Deere Industrial Division
St. Louis, Missouri
Diamond Iron Works, Division Goodman Manufacturing Co.
Chicago, Illinois
Disston Division, H. K. Porter Co., Inc.
Pittsburgh, Pennsylvania
Dixie Controller, Inc.
Birmingham, Alabama
Drake Saw Corporation
St. Louis, Missouri
The Enterprise Co., Div. of Wm. K. Stamets Company
Pittsburgh, Pennsylvania
Ford Motor Company, Tractor & Implement Division
Birmingham, Michigan
Forest Products Research Society
Madison, Wisconsin
Forestry Suppliers, Inc.
Jackson, Mississippi
French Commercial Office
New Orleans, Louisiana
Frick Company
Waynesboro, Pennsylvania
Fulghum Industries, Inc.
Wadley, Georgia

Thousands of lumbermen are viewing the latest in lumber equipment at Southern Pine Association's 1961 show.

The 1961 Exposition is a key factor in a "blueprint for progress" mapped out for the Southern Pine lumber industry. The effectiveness of the Association's program for expanded business has resulted in a wave of mechanization out for the southern Pine lumber industry. The Machinery Expositions are in a large part responsible for the movement.

Exactly how far the industry has advanced in recent years is better told through descriptions of just a few Exposition displays. The following is a random selection which illustrates only a small portion of the southern Pine industry's "blueprint for progress."

The Rees Burner and Blow Pipe Co. exhibits a scale model of the firm's Double Wall Refuse Burner. Rees burners are used in the southern Pine market for disposal of wood refuse which is not of any use.

Kohler-Joa Corp. presents a complete model of its Double End Tenoner, the detailed and well-executed handiwork of the company's patternmaker, Tony Gehrke, and possibly the only model of its type in the United States.

The Enterprise Co., division of Wm. K. Stamets Co., features the Enterprise Medium Duty Remote Controlled Automatic Sawmill Carriage. Among other innovations, the new machine has an entirely new setworks which is air-operated, hydraulically controlled, and has accuracies measured in thousandths of an inch.

The Tractor and Implement Division of Ford Motor Co. display consists of illuminated, full-color photographs of Ford Tractors and industrial equipment with special emphasis on the Ford 4000 Heavy Duty Fork Lift which can handle 4,000-pound-loads.

The National Casein Co. has on view samples of glues and preservatives, and glued-up samples of various constructions in millwork and furniture.

Hanchett Mfg. Co. gives special emphasis to its Style DN Knife Grinding Machine in the company's display of several of their knife grinding and saw grinding machines. The Style DN was particularly designed to properly sharpen all of the knives used in the southern Pine mills.

Pettibone's Super 7

Clark's Ranger 60

Tri-State's Gand Rip Saw

Hanchett Manufacturing Company
Big Rapids, Michigan
Hawker Manufacturing Company, Div. East Dayton Tool & Die Co.
Dayton, Ohio
Hockersmith & Associates, Inc.
Morristown, Tennessee
R. Hoe & Company, Inc.
Birmingham, Alabama
Hyster Sales & Service, Inc.
New Orleans, Louisiana
Industrial Blow Pipe Company
Memphis, Tennessee
Industries Sales Corporation
New Orleans, Louisiana
Irvington Machine Works, Inc.
Portland, Oregon
Jackson Industries, Incorporated
Birmingham, Alabama
Kohler-Joa Corporation,
Sheboygan Falls, Wisconsin
Lawson Stacker Company, Inc.
Memphis, Tennessee
Link-Belt Company
Chicago, Illinois
Lombard Governor Corporation
Ashland, Massachusetts
Louisiana State University, School of Forestry
Baton Rouge, Louisiana
McCulloch Corporation
Los Angeles, California
R.C.H. McCulloch Chain Saw Co.
Memphis, Tennessee
McDonough Manufacturing Company
Eau Claire, Wisconsin
Marathon Machinery Company, Ltd.
Portland, Oregon
Mater Division, Appleton Machine Co.
Corvallis, Oregon
Mattison Machine Works
Rockford, Illinois
Mechanical Equipment Company, Inc.
New Orleans, Louisiana
Miller Freeman Publications
San Francisco, California
Moisture Register Company
Alhambra, California
Moore Dry Kiln Company
Jacksonville, Florida
Morbark Portable Debarker Company
Winn, Michigan
National Blow Pipe & Manufacturing Co., Inc.
New Orleans, Louisiana
National Casein Company
Chicago, Illinois
National Safety Council
Chicago, Illinois
Newman Machine Company, Inc.
Greensboro, North Carolina
Nielsen Saw & Manufacturing Company
Eugene, Oregon
Northeast Ohio Machine Builders, Inc.
Columbiana, Ohio
Nygran Industries, Ltd.
Richmond, California
Omark Industries, Inc.
Portland, Oregon

The Hawker Mfg. Division of East Dayton Tool and Die Co. presents several machines, among them the firm's new automatic multi-purpose wood-working unit that produces parts from round, square or rectangular stock for furniture parts, toy parts, and handles. Production of 2,000 to 3,000 pieces per hour is possible on many parts machined by the unit.

Clark Equipment Co. features its Ranger 60 truck which is especially designed for work on unimproved surfaces. It can be towed at highway speeds directly to the job site, lending itself to lumber application.

The Wheland Company's exhibit features two machines, one of them the new Sturdi-30 Carriage, which was especially designed for southern Pine operation. The unit is a new concept in carriage construction, combining modular construction with the truck, base, and knee in one unit.

The Pettibone Mulliken Corporation's Super 7 Carry-Lift demonstrates its versatility. The truck has a hydraulic forward reach and can reach across rail cars or flat bed trucks in order to load them from one side. Pettibone also exhibited two other loaders and two log skidders.

The Newman Machine Co., Inc. presents its Newman G-20 Automatic Knife Grinder and its K-318 Multiple Ripsaw. The latter has a maximum saw spacing of 12", 18", and 24". The knife grinder gives continuous grinding motion for faster wet or dry grinding.

The Moore Dry Kiln Co. exhibit features its Forced Air Dryer which has enabled the industry to produce brighter, flatter lumber with less degrade and at a faster drying rate than is possible through yard drying.

Moisture Register Co. exhibits its full line of electronic moisture meters, featuring its compact Model R6 which is a new, one-piece instrument. The meters are used on a wide variety of building materials.

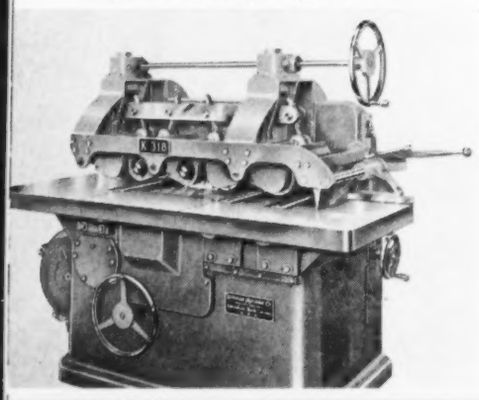
The Soderhamn Machine Mfg. Co. exhibit stresses the company's complete engineering service. On display is the firm's complete line of equipment including its Ro-Vac Barker 48" Horizontal Chipper and CS-20 Chip Screen.

Tri-State Machinery Co. introduces and demonstrates its new Model 816 Multiple Blade Rip Saw. This Gang Rip Saw, totally new in concept, has a wedge bed design for raising and lowering the arbor assembly.

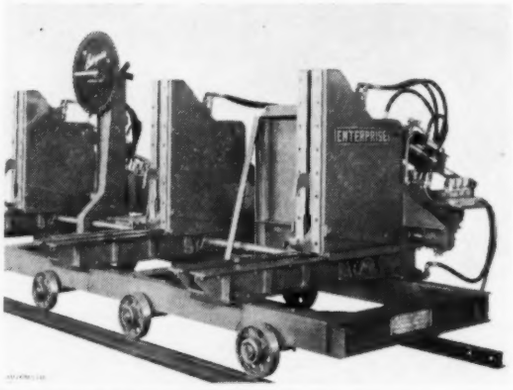
The Wapakoneta Machine Co. displays its entire line of machine knives for the woodworking industries, paying particular attention to the chipper knives and anvil knives used in all makes of chippers devoted to the utilization of waste wood.

Simonds Saw and Steel Co. displayed its three latest developments—"Si-Namic" Wide Saw Bands, "Si-Clone" Thin Planer Knives, and "Simo-Brite" Saw Bits and Shanks. Field tests indicate these tools have more fatigue resistance, greater tension life, and longer edge-holding qualities than ever before.

Newman's Multiple Rip Saw



Stamets' Medium Duty Carriage



Hawker's Dowel Machine

List of SPA Exhibitors

Onsrud Machine Works, Inc.
Niles, Illinois
Perkins Glue Company
Lansdale, Pennsylvania
Pettibone-Mulliken Corporation
Chicago, Illinois
Poulan Saw Company, Inc.
Shreveport, Louisana
The Prescott Company
Menominee, Michigan
Rader Pneumatics, Inc. of Tennessee
Memphis, Tennessee
Raybond Electronics, Inc.
Norwood, Massachusetts
Rees Burner & Blow Pipe Company
Memphis, Tennessee
Remington Arms Company, Inc.
Bridgeport, Connecticut
Salem Equipment & Supply Co., Inc.
Salem, Oregon
Simonds Saw & Steel Company
Fitchburg, Massachusetts
Soderhamn Machine Manufacturing Co.
Talladega, Alabama
Southern Forest Experiment Station
New Orleans, Louisiana
The Southern Lumberman
Nashville, Tennessee
Southern Pine Association
New Orleans, Louisiana
Southern Pine Inspection Bureau
New Orleans, Louisiana
Southern Railway System
Washington, D.C.
The Standard Dry Kiln Company, Inc.
Indianapolis, Indiana
Taylor Machine Works, Inc.
Louisville, Mississippi
M. N. Thackaberry, Inc.
Los Angeles, California
Thibodeau Industries
Valdosta, Georgia
Timberland Saw Company
Marshall, Texas
Timberline Equipment Company
Bradley, Illinois
Tri-State Machinery Company
Dallas, Texas
U. S. Forest Products Laboratory
Madison, Wisconsin
U. S. Steel Supply Division, U. S. Steel
Pittsburgh, Pennsylvania
R. T. Vanderbilt Company, Inc.
New York, New York
The Wapakoneta Machine Company
Wapakoneta, Ohio
The Wel-Dri Company
Memphis, Tennessee
The Wheland Company
Chattanooga, Tennessee
The White Motor Company, The Autocar Division
Exton, Pennsylvania
Wilco Machine Works, Inc.
Memphis, Tennessee
S. A. Woods Machine Company
Boston, Massachusetts
The Yale & Towne Manufacturing Co.
Philadelphia, Pennsylvania
Yates-American Machine Company
Beloit, Wisconsin

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LOGSAWS AND RESAWS
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firmer guiding—
faster feeding

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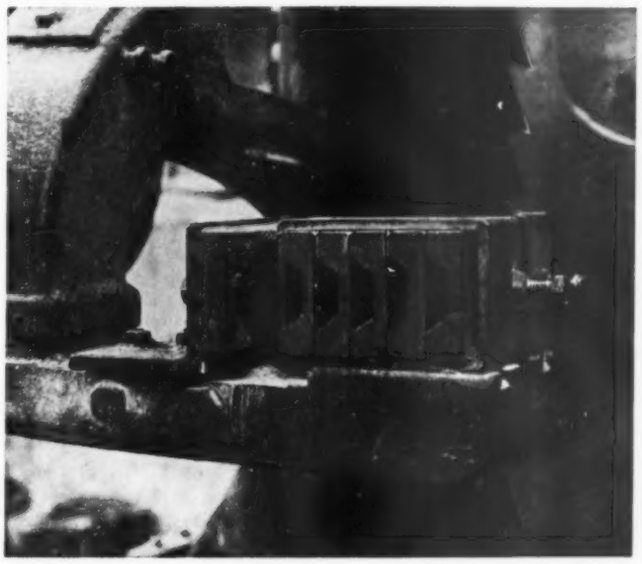

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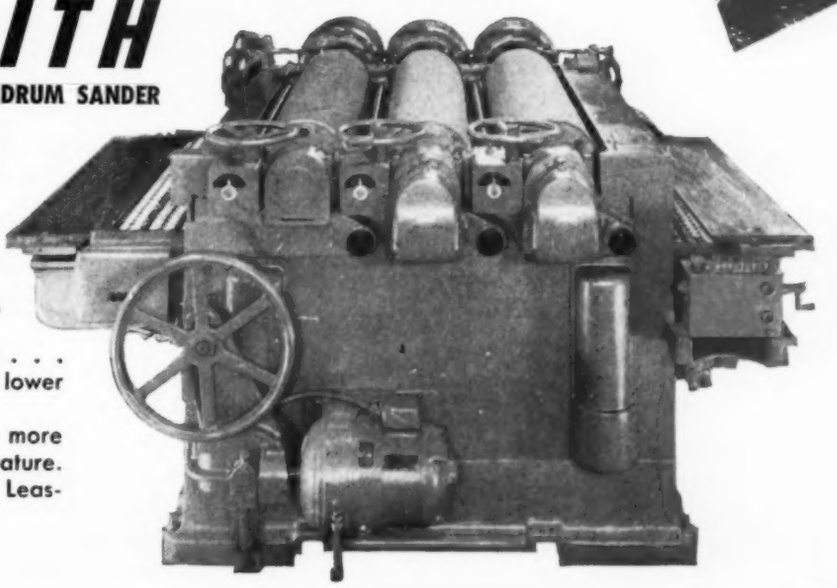

WOODWORKING MACHINERY MANUFACTURERS' ASSOCIATION WMMA

H. B. SMITH MACHINE CO.

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*"I shall propose to the Congress a new tax incentive for business to expand their normal investments in plant and equipment"**

PRESIDENT JOHN F. KENNEDY

Modernization of plant facilities, replacement of productive equipment and capacity to produce are getting top priority and attention in Washington. The President showed a commendable awareness of three major problems which must be attacked if our country is to remain strong: economic growth, plant modernization and price stability.

Before a packed house, he expressed thoughts every business held dear, and which every businessman had been trumpeting for years. "Capacity operation is the key. No matter what other arguments or stimulants are used, the incentives for investing new capital to expand manufacturing plant and equipment are weak as long as manufacturers are operating at less than 80% of capacity. From 1950 to 1958 we put only one sixth of our total output into capital formation, while Japan, Germany, Italy, the Netherlands, Canada, and Sweden were all investing one fifth or more of their total output in capital goods. So it is not surprising that each of these and other nations over the past several years has surpassed us in average annual rate of economic growth."

In speaking of plant modernization the President said, "New plant investment not only means expansion of capacity; it means modernization as well. Gleaming new factories and headlines about automation have diverted our attention from an aging industrial plant. Obsolescence is slowing down our growth, handicapping our productivity, and worsening our competitive position abroad."

THE U.S. IS "FALLING BEHIND"

"Nothing can reverse our balance-of-payments deficit if American machinery and equipment cannot produce the newest products of the highest quality in the most efficient manner. The available evidence on the age of our industrial plant is unofficial and fragmentary; but the trend is unmistakable—we are falling behind.

"The average age of equipment in American factories today is about nine years. In a dynamic economy, that average should be falling, as new equipment is put into place. Instead, the available evidence suggests that it has been slowly rising. Private surveys of machine tools used by manufacturers of general industrial equipment found less than half of these tools over ten years old in 1949, but two thirds over that age in 1958. Nineteen per cent of our machine tools were found to be over twenty years old.

"Meanwhile, other countries have been lowering the average age of their fixed capital. The German example is the most spectacular: their proportion of capital equipment and plant under five years of age grew from one sixth of the total in 1948 to two fifths in 1957.

"All of these facts point in one direction: We must start now to provide additional stimulus to the modernization of America's industrial plant. Within the next few weeks, I shall propose to the Congress a new tax incentive for businesses to expand their normal investments in plant and equipment."

PRICE STABILITY AND INFLATION

The President realizes that the government is almost without "direct and enforceable powers over the central problem." He continued, "A free government in a free society has only a limited influence over prices and wages freely set and bargained for by free individuals and enterprises. And this is as it should be if we are to remain free.

"Nevertheless, the public interest in major wage and price determination is substantial. Ways must be found to bring that public interest before the parties concerned in a fair and orderly manner. For this reason, I have announced my determination to establish a Presidential Advisory Committee on labor-management policy, with members drawn from labor, management, and the public. I want this committee to play a major role in helping promote sound wage and price policies, productivity increases, and a betterment of America's competitive position in world markets. I will look to this committee to make an important contribution to labor-management relations, and to a wider understanding of their impact on price stability and economic health. And in this undertaking, I ask and urge the constructive cooperation of this organization and its members.

"Economic growth, plant modernization, price stability—these are all intangible and elusive goals. But they are all essential to your success, and to the success of our country. Initiative, innovation, and hard work will be required, on your part and on ours."

*President John F. Kennedy's address to the luncheon meeting of the National Industrial Conference Board, Washington, D. C., February 13, 1961.

e G-P production consultant

His specialty: hardboard. And whether you manufacture fine furniture xtures, card tables or toys, chances are hardboard can do some part e job better for less. Here's the man who can tell you. He has all echnical data on hardboard — internal strength, impact resistance, ulus of rupture — and all the production information on hardboard's rmance under pressure glueing, with laminates, etc.

His service is without charge. The G-P consultant in your area will e right to your plant . . . analyze your problems . . . suggest ways to put avings of hardboard to work in your operation.

Other G-P services you'll like: Not only does Georgia-Pacific have a lete line of hardboards for furniture use but a warehouse near you stock on hand. You never wait for an order to be filled. Of special est are the G-P hardboards especially designed for furniture produc- such as Cabinet Panel which is pigment-sealed to blend with wood es yet costs no more than ordinary dark hardboards. We'd be delighted nd you a sample.

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GP

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☐ Please have your production consultant call

☐ Please send samples of Cabinet Panel and full information on G-P hardboards for furniture production.

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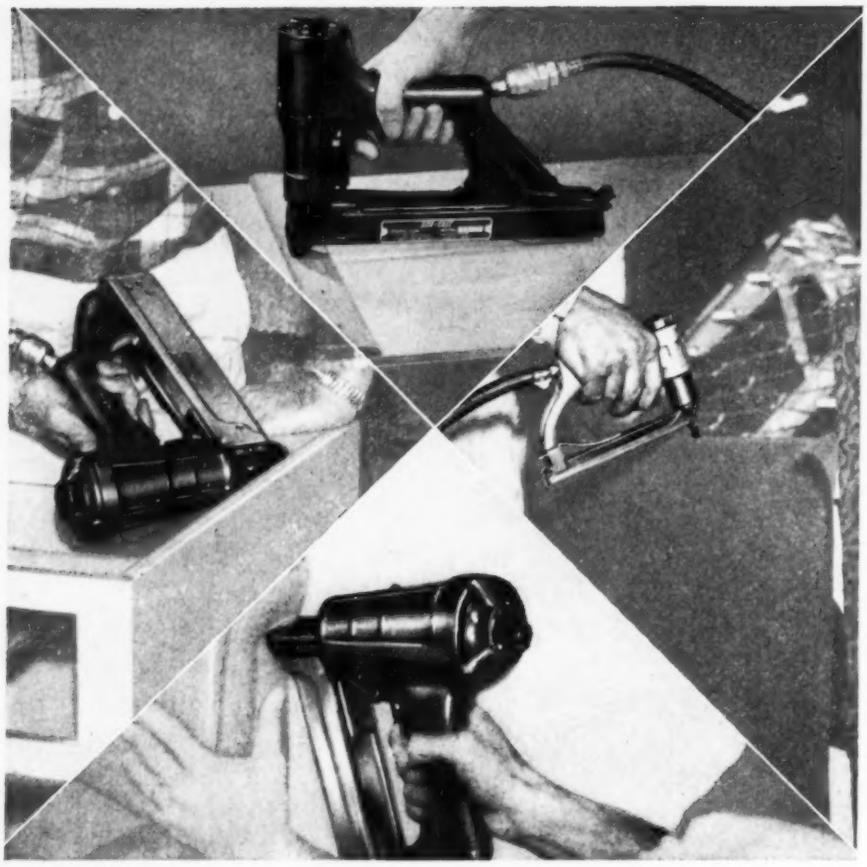

When the tacker matches the job

production goes up...costs go down

There is a model in the comprehensive DUO-FAST line that exactly matches your job . . . and will do it better, faster and at lower cost.

Better because: It gives you perfect control . . . you just position the tacker and press the trigger. A tight-holding staple or brad is driven precisely *where you want it*. And because DUO-FAST gives you such a wide range of staples and brads to choose from . . . a variety of crown widths, points, wire gauges, finishes, and lengths from $\frac{5}{32}$" to $1\frac{1}{2}$" . . . one of which is just right for your job.

Faster because: Air does the work. DUO-FAST tools have an effortless, feather-touch trigger or trip. Operators attain top working speed without sacrificing quality. Jobs are completed 3 to 5 times faster.

Lower cost because: Precision manufacture, plus the DUO-FAST Free Service Policy keeps your DUO-FAST tackers operating at peak efficiency day after day, even under the hardest usage.

Send today for a copy of the new DUO-FAST Manual and see why more DUO-FAST guns are being used today than ever before.

FASTENER CORPORATION 3706-08 River Road. Franklin Park, Illinois

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DUO-FAST Staplers Tackers Staples

Everything you need for tacking, stapling and nailing.

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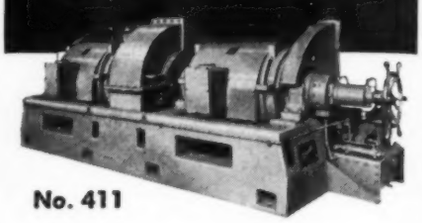
Bauer

DOUBLE REVOLVING DISC

REFINERS



No. 411

for particles of proper fiber size

In wet or dry process operations, you'll produce better board products by using "Bauers" for refining the raw or steamed wood and defibrated stock. These precision, high capacity refiners provide the particle size you need to meet the most rigid sales specs for appearance, strength, uniformity, etc.

Other Bauer equipment is listed below:

Single Revolving Disc Refiners—for preliminary fiberizing. Wet and dry process.

M.I.S. Disperser-Mixer—for simultaneous blending of additives and fibers in dry and semi-dry operations.

Pump-Through Refiners—for maximum fiber strength development in wet stock preparation.

Continuous Digesters—for steaming chips, or moisture restoration in waste wood.

High Speed Hammer Mills . . . Chip Breakers . . . Specific Gravity Separators . . . Magnetic Separators.

•

For information on any of the above, or for engineering service, contact

THE BAUER BROS. CO.
Springfield, Ohio

Bauer

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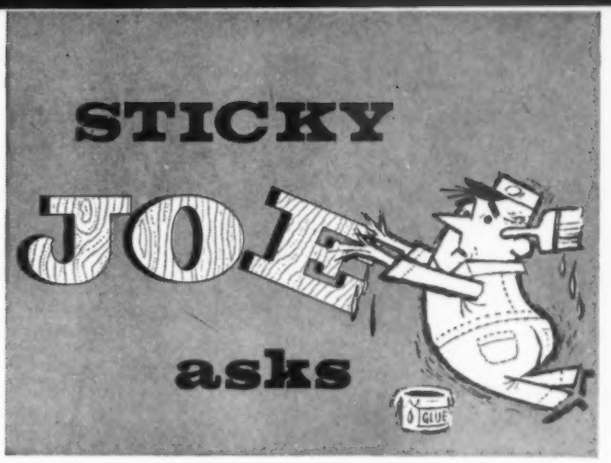
Editor's Note—In establishing this service we will give you the answers of qualified technical people to many questions concerning the use of adhesives. If you have any problems regarding adhesives just send them to "Sticky Joe," c/o Hitchcock's WOOD WORKING Digest, and he will ask the experts for the answers.



THE QUESTION ▸

Our glue from the mixer never shows any sign of foam but after a short time in the spreader it foams regardless of the speed of the spreader rolls. This spreader uses a circulating pump. Could the pumping action have anything to do with the foam?

IDENTIFYING THE EXPERTS

R. J. Bandekow

Assistant Sales Manager

Resins & Chemicals Department
The Borden Chemical Company
350 Madison Avenue
New York 17, New York

A. L. Lambuth

Group Leader

Customer Service Laboratory
Monsanto Chemical Company
Western Adhesives, Plastics Div.
911 Western Avenue
Seattle 4, Washington

A. B. Klinetob

General Sales Manager

Perkins Glue Company
Lansdale, Pennsylvania

The following answers were received from the experts:

Dear "Joe":

Foaming of urea formaldehyde resins is often due to the spreader rolls operating at too fast a speed, thus agitating and beating air into the resin mix. Circulating pumping action may increase foaming tendencies. Occasionally, the resin itself is at fault. The adhesive supplier should be contacted for proper recommendations.

Very truly yours,
R. J. Bandekow

Dear "Sticky Joe":

Foaming of a glue in the spreader hoppers may be caused by the pump, the viscosity of the glue, hopper capacity, type of roll grooving, and amount of foreign material in the hoppers, as well as roll speed. Fluting or lateral grooving on the rolls can cause air entrapment at almost any spreader speed, as will sawdust or chips in the hoppers. Also, small volumes of glue due to small hoppers or a low level will cause foaming more readily at any roll speed than larger volumes due to increased severity of agitation. In general, thick viscous glues entrap air more readily than thin glues during any kind of agitation.

Assuming your equipment is designed correctly and operating properly the tendency to foam from any cause will be minimized by keeping the hoppers full and clean, thinning the glue to the lowest level consistent with other working properties, and adding defoamer if required.

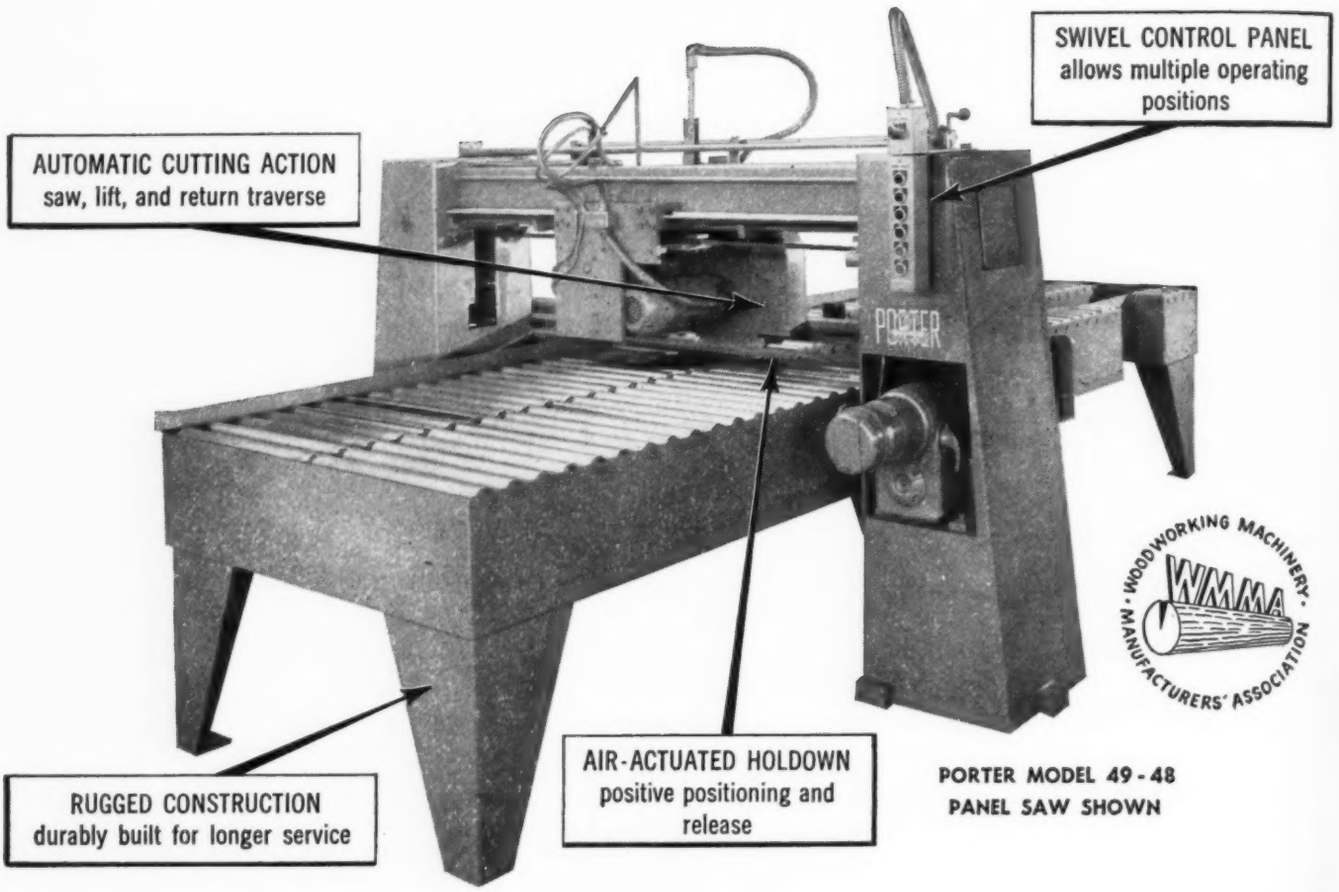
Sincerely yours,
A. L. Lambuth

Dear "Joe":

It is very possible that the circulating pump on your spreader is causing the foaming. If eliminating the pump or at least slowing down its speed does not stop foaming, then you should check the quality of your extendor flour, assuming that you use flour.

Respectfully yours,
A. B. Klinetob

The NEW PORTER PANEL SAW



PORTER MODEL 49-48
PANEL SAW SHOWN

Handles ANY panel width easily, economically, automatically

Compare the specifications on the Model 49 series for yourself. We're sure that you won't find these features anywhere else in a machine at this price . . . automatic operation, controlled from either side—positive grip air actuated stock stops — carriage feeds variable from zero to desired speeds — 1⅛" diameter saw arbor — handles 18" diameter saw blade (standard) — 7½ HP, 3600 RPM saw arbor motor — 2 stroke settings standard — heavy duty construction throughout.

Here is an **all new** panel saw which offers you automatic handling ease, rugged dependability, and a price unmatched in the industry. It has been designed to cut panels to any length, required thickness, or speed. The Model 49 series features a saw arbor assembly that moves easily through the cut, then lifts clear on the return stroke to eliminate any possibility of stock damage. The carriage rides on ball bearing bushings over hardened and ground steel rods to insure rigid, straight line cutting . . . The Model 49 Panel Saw series, latest in the long line of C. O. Porter **Dividend Designed** machines.

Remember, C. O. is your guarantee of greatest COoperation

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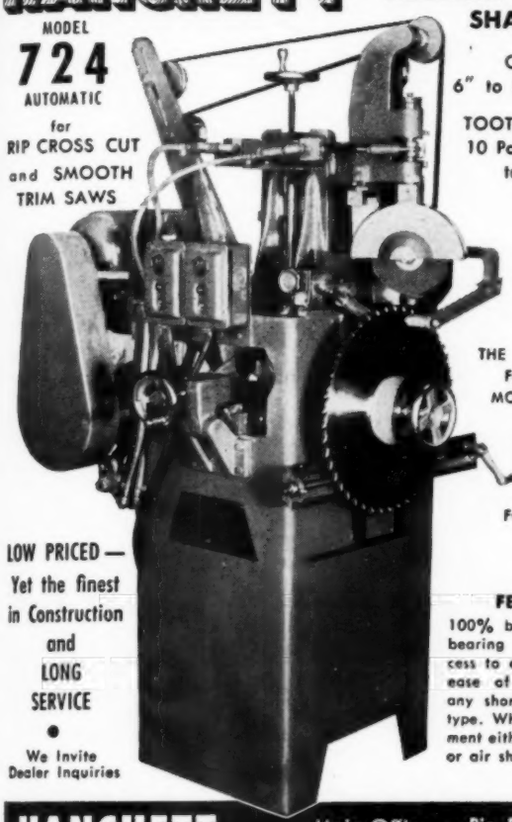
HANCHETT CIRCULAR SAW SHARPENER

MODEL **724** AUTOMATIC for RIP CROSS CUT and SMOOTH TRIM SAWS



CAPACITY 6" to 36" Dia. Saws

TOOTH SPACINGS 10 Points Per Inch to 2 Inch

BEVELS 18 to 50 Degrees

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THE SMOOTHEST — FASTEST AND MOST ACCURATE

A WORKHORSE IN OPERATION WITH FULL CONTROLS FOR ALL BEVELS.

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LOW PRICED — Yet the finest in Construction and LONG SERVICE

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FEATURES

100% ball and roller bearing shafts easy access to all moving parts ease of adjustment for any short or long tooth type. Wheel head movement either cam actuated or air shift.

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New Super-Velocity-Air Kiln Drying

THE PROCESS DOCUMENTED BY MADISON FOREST PRODUCTS LAB. Bulletin #1269 (1960)

HIGHEST QUALITY
HIGHEST SPEED DRYING
LOWEST OPERATING COSTS
LOWEST PRICED

OIL GAS STEAM

Proven Coast to Coast

BULLETIN ON REQUEST

Lumber Dryalators, Inc.
Div. Wolverine Equipment Co.
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ReNew GIVES NEW LIFE TO SANDPAPER AND CUTS SANDING COST 50%

Keep your sandpaper cutting for you with ReNew. Apply . . . let it dissolve the pitch or resin . . . then brush it off with a scrubbing brush. It's so easy and quick and makes your sandpaper last at least 3 times as long.

ReNew increases sanding machine efficiency . . . paper lasts longer . . . less changes necessary. ReNew is non-inflammable.

We also have a complete line of maintenance paints. Write for prices.

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MOLINE ILLINOIS

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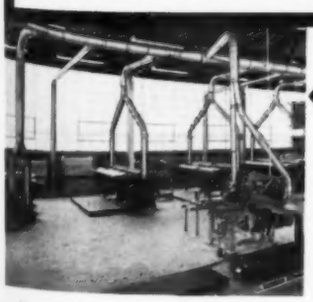
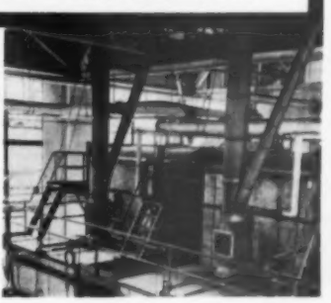
DO YOU KNOW HOW MUCH MONEY YOU CAN SAVE WITH AN AUTOMATED DUST COLLECTING SYSTEM?



Efficient OBP system continuously picks up all dust and chips directly from line of grooving saws . . . and additional floor pick-up stations allow cleaning of entire area.

All dust, shavings and chip waste is turned into "free" fuel with OBP pneumatic handling system engineered for direct, controlled feed into furnaces.



Ask an OBP engineer to survey your requirements. You may be surprised what a critical analysis can discover.

OHIO BLOW PIPE CO. • **1732 Doan Avenue Cleveland 12, Ohio**

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ASSOCIATION & RESEARCH NEWS

Arkansas Has More Softwood, Less Hardwood

Arkansas forests have more softwood timber but less hardwood than they did a decade ago, according to a survey of the state's timber resources.

A report of the survey was released recently by State Forester Fred H. Lang and Philip A. Briegleb, Director of the Southern Forest Experiment Station of of the United States Department of Agriculture. The survey is an activity of the Experiment Station, whose headquarters are at New Orleans, La.

Arkansas' timber supply in sound, well-formed trees at least five inches in diameter amounts to 12 billion cubic feet. Softwood volume has increased 31 per cent since the previous forest survey in 1951. Softwoods include the Southern Yellow Pines as well as Cypress and Red Cedar. Hardwood volume has declined nine per cent.

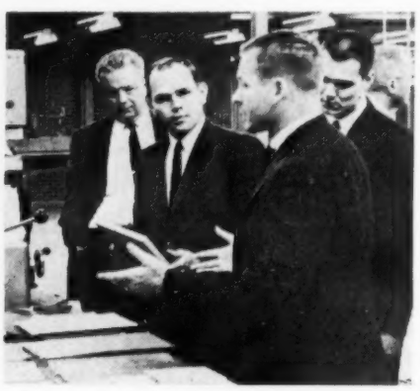
The volume of trees large enough to make lumber is 41 billion board feet. In these sizes, softwood volume had increased 41 per cent while hardwood has dropped 19 per cent.

The survey also shows that forests cover 20.8 million acres of the state's total land area of 33.6 million acres. This is seven per cent more forest land than there was in 1951. The increase is largely due to reversions of farmlands to forest.

All together, Arkansas' extensive forest resources support almost 1,000 sawmills, four pulp mills, and some 130 miscellaneous wood-using plants. A full report of the survey may be secured from the State Forester's office at Little Rock, Ark., or from the Southern Forest Experiment Station, 2026 St. Charles Ave., New Orleans 13, La.

NAFM Sets Convention Date

The National Association of Furniture Manufacturers will hold its 33rd annual convention and seventh annual Supply, Equipment & Fabric Fair at the Conrad Hilton Hotel in Chicago, Ill., September 16-19. Included among the many exhibits and displays will be a variety of fabrics and woodworking machinery from concerns located both in the United States and in several European nations.



Plastics In a Wood Products Laboratory

Tough plastic surfaces that can be produced easily and quickly on wood veneers or "soft" core materials were the center of attention during a recent visit to North Carolina State College's wood products laboratory in Raleigh, N.C., by members of the Forest Products Research Society (Carolinas-Chesapeake Section). A. V. Dupuis (gesturing), plastics engineer of the Wood Machinery and Chemical Corporation's technical laboratories, addressed the group during its technical sessions.

ASTM Wood Pole Research Report Is Now Available

The complete report of the American Society for Testing Materials' wood pole research program is now available as a separate publication. The report contains a wealth of data and information on tests of full-sized poles.

It includes 60 pages of discussion and explanation of the many factors involved in the testing of wood poles, 82 tables of data covering the testing of some 600 full-sized treated and untreated poles and more than 14,000 small, clear specimens from the pole material. The 182-page book, sold for $5, contains 31 figures and illustrations which augment the report.

Copies may be obtained from ASTM Headquarters, 1916 Race St., Philadelphia 3, Pa.

Gloomy Prediction of India's Future

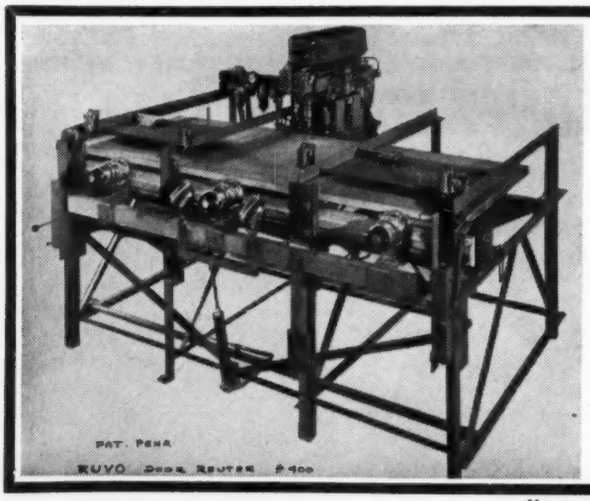
India will ultimately succumb to a communist or fascist dictatorial regime, according to Dr. Joseph E. Marian, wood technologist in the University of California's Forest Product's Laboratory.

The Finnish scientist recently returned to the United States after spending a year as advisor to the National Council of Applied Economic Research of the Government of India.

Marian based his forecast on observations made during 25,000 miles of travel on the sub-continent. He declared that Communist China probably will occupy India's north-eastern border states and will exert increasing military pressure on its neighbors.

Marian painted a dismal picture of India's progress in the fields of forestry and wood utilization. "India's devastation of its forests is unbelievable," he said, adding, "If the Indians continue to destroy their forests at the present rate, they will have none left in 20 years."

Marian described India's reforestation as "inadequate," and said that any new plantations are negated by devastation of other forests. Wood utilization is also a sadly neglected field in India.



RUVO INTRODUCES A NEW PREHUNG DOOR ROUTING AND BORING MACHINE

Door and Both Jambs Machined

with Hinges Attached—In One Operation

FAST - FOOLPROOF - ECONOMICAL

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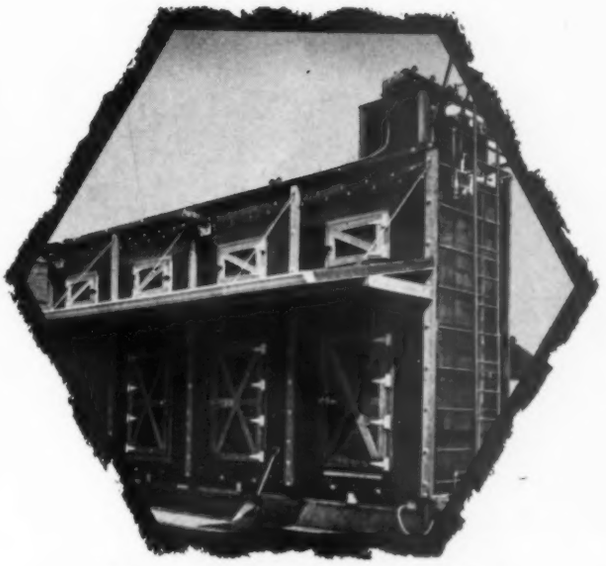

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Where insulation is important...where humidity is a factor ...where intermittent wetting and drying occur—those are the jobs where Certified Kiln Dried redwood is unexcelled among commercial woods. Write for specific information on the use of redwood for your product.

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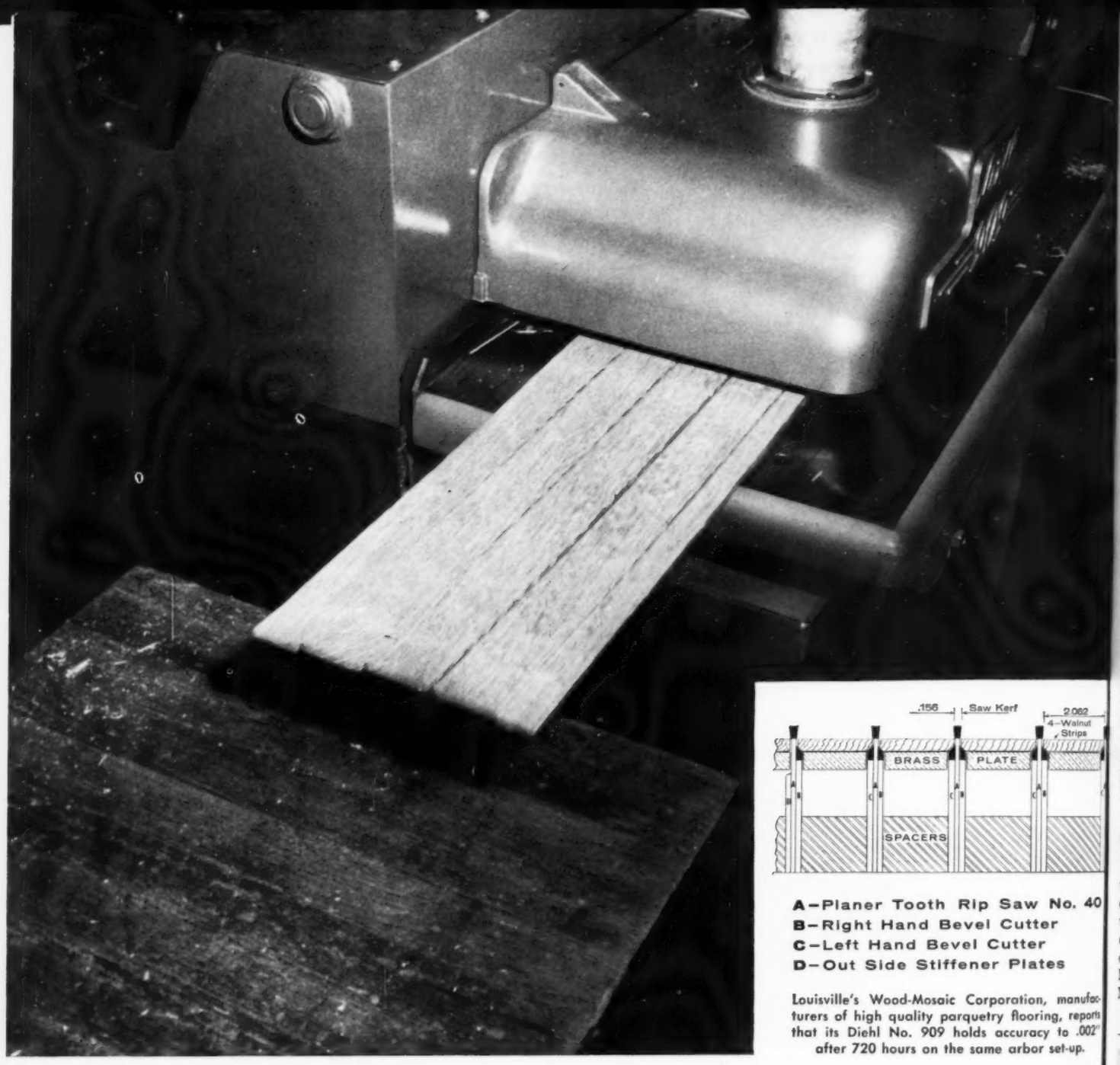

A—Planer Tooth Rip Saw No. 40
B—Right Hand Bevel Cutter
C—Left Hand Bevel Cutter
D—Out Side Stiffener Plates

Louisville's Wood-Mosaic Corporation, manufacturers of high quality parquetry flooring, reports that its Diehl No. 909 holds accuracy to .002" after 720 hours on the same arbor set-up.

You name it. Name the wood product, and chances are that it's being cut on the Diehl No. 909 Gang Rip Saw. Since its introduction, more than 55 woodworking plants have already installed No. 909s to rip stock for everything from T squares to pre-cut homes. The high-speed No. 909 will saw and dado or saw and groove at the same time, and several users glue direct from the saw. With either conveyor or hopper feed, the No. 909 can rip stock as short as 5". Its five powered feed rolls provide smooth, positive feed. A check of your plant will probably reveal a spot where this versatile saw can make your operation more profitable. Ask your Exclusive Diehl Representative to arrange a demonstration in a nearby plant.

STANDARD OF Diehl COMPARISON

THE G. M. DIEHL MACHINE WORKS, INC., Wabash, Indiana

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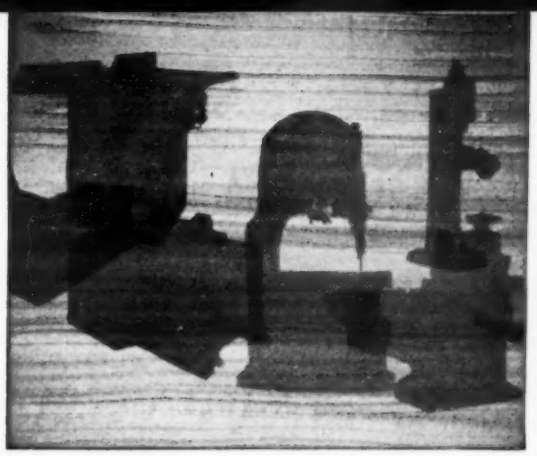
Telephone: 484



equipment and supplies

No Gasoline Fumes with LP Vacuum Cleaner

A LP (propane or butane) gas model vacuum floor cleaner provides the features and mobility of gasoline models without the fume or objectionable odors common to gasoline power.

Floormobile offers dust-free cleaning of large floor areas at speeds up to 20,000 square feet an hour. It suction-cleans dust and all dirt, trash, shavings, chips, cloth, scrap, etc. off the floor into an easily emptied dirt can. The Floormobile cleans a path 22" wide and is extremely maneuverable.

The unit uses all UL approved fittings, regulators, and lines. It carries a standard ICC-4B-240 5 lb. capacity tank.

Manufacturer: Handling Devices Co., Inc., 34 Concord Lane, Cambridge 38, Massachusetts.

Use postpaid card. Circle No. 1

Woodworkers' Vises

Sixteen models of Columbian Woodworkers' Vises are available with chrome-coated tubular steel or hardwood handles in both rapid-acting continuous screw or solid nut continuous screw 7" and 10" jaw sizes.

Manufacturer: Columbian Vise and Manufacturing Co., Cleveland 4, Ohio.

Use postpaid card. Circle No. 2

Light and Light-Medium Duty Casters

A series of light and light-medium duty casters is now being manufactured by Nutting Track and Caster Company.

Application on floor trucks and dollies mobilizes a variety of equipment in factories and offices. These new casters are available in matching swivel and rigid types.

Manufacturer: Nutting Truck & Caster Co., Faribault, Minn.

Use postpaid card. Circle No. 4

Push-Button Adhesive Applicator

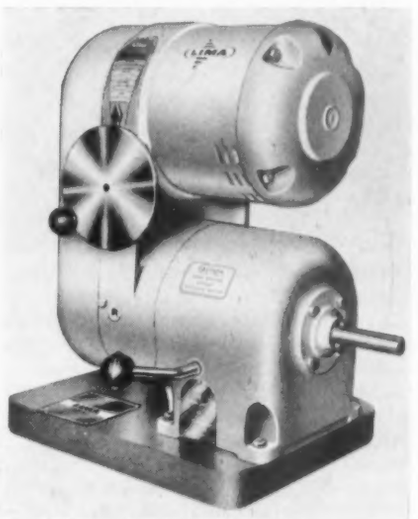
An adhesive applicator with a new push-button control on the brush barrel permits instantaneous and exact regulation of adhesive flow.

The applicator feeds solvent and water-based adhesives through a flexible hose directly into the brush under ordinary factory air pressure. It includes a pressure tank which dispenses adhesives of average viscosity at 20 lbs. of pressure. Three outlets on the tank permit installation of as many as three hoses allowing up to three operators to work from one unit.

Manufacturer: Bostik Adhesives, B. B. Chemical Co., Subsidiary of United Shoe Machinery Corp., 784 Memorial Drive, Cambridge 39, Mass.

Use postpaid card. Circle No. 5

New Vari-Gear Speed Drive



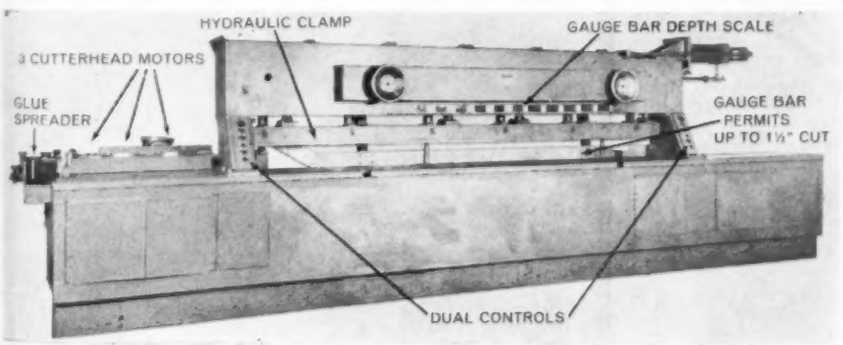
The Vari-Gear Drive unit provides infinitely variable output speeds in each of four different transmission ratios. Every rpm between 180 and 1800 is obtainable when an 1800 rpm motor is incorporated. With a 1200 rpm motor all speeds between 120 and 1200 are possible.

Either drip-proof or totally enclosed fan-cooled units can be furnished. The incorporation of a 4-speed transmission as a component of the drive results in three times greater torque at the low speed than in any comparable friction type unit.

A simple control wheel regulates the output shaft to the desired rpm. A pointer indicates on a calibrated speed plate the exact rpm at which the output shaft is turning. The unit is compact and lightweight.

Manufacturer: Lima Electric Motor Co., Inc., Dept. 456, Lima, Ohio.

Use postpaid card. Circle No. 6

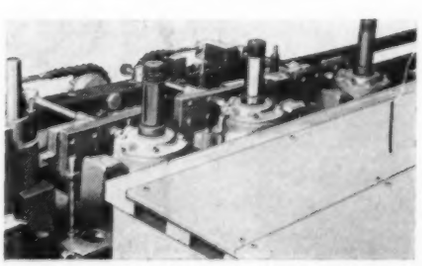


Head Veneer Joiner Lessens Dry Clipping

A traveling head veneer jointer with hydraulic carriage travel and hydraulic clamp to remove up to 1½" of stock in one cut eliminates a great deal of the dry clipping normally required before jointing.

Manufacturer: Ericsson Merritt, Inc., 519 Pine Street, Lockport, N.Y.

Use postpaid card. Circle No. 3



Hand-Operated Glue Spreader

Originally designed to apply adhesives to assembled framing members, a new portable, hand-operated glue spreader is suitable for numerous other gluing operations.

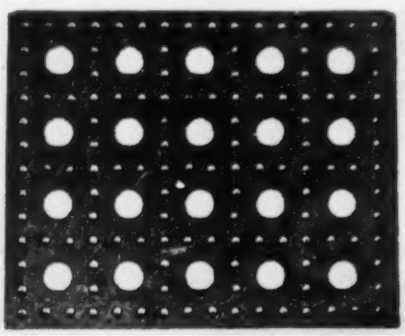
Equipped with a 3½" gluing roll this spreader can be used on edges of lesser width without "run over." It holds approximately two quarts of adhesive. It can be cleaned without disassembly.

Manufacturer: Black Brothers Company, Inc., Mendota, Ill.

Use postpaid card. Circle No. 7

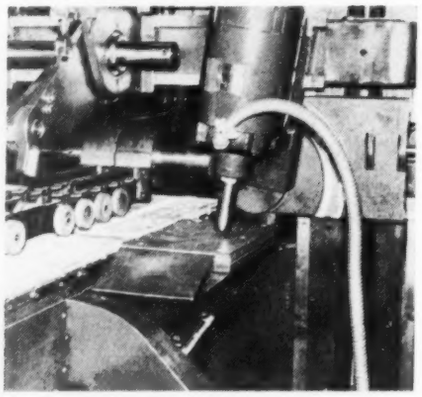
A New (Perforated) Hardboard

The Hardboard Fabricators Corp. announces the production of Caneboard. Tests have proved that this very decorative, perforated hardboard is most practical. It is strong, durable and paints beautifully. Specifications are 1/8" thick, tempered, domestic hardboard, smooth both sides.



Caneboard can be used for room partitions, sliding doors, cabinets, displays, paneling, acoustical ceilings, etc. The nature of this board is such that its ventilating properties make it adaptable for uses as radio backs, TV backs, hampers, and other products where good ventilation is required.
Manufacturer: Hardboard Fabricators Corp., 49 Empire St., Newark 5, N.J.
Use postpaid card. Circle No. 8

New Scarfing Arbor For Slat Beds

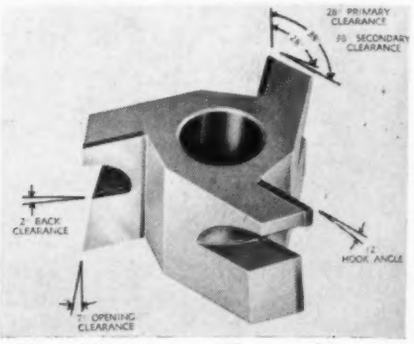


More versatility for the Jenkins Slat Bed multiple cutup machine is now available with the addition of a new scarfing arbor to the tool stand.

Scarfing into a heavy, laminated backing plate off the edge of the slat bed, the new arbor will cut all standard scarf joints from random length, random width, and random thickness fed in any sequence.
Manufacturer: Kohler-Joa Corp., Sheboygan Falls, Wisc.
Use postpaid card. Circle No. 9

Carbide-Tipped Door Lip Shaper Cutter

A carbide-tipped door-lip shaper cutter is especially designed for long wear in cutting plywoods that contain phenolic resin-type binding agents. The new cutter is available in two models —one for clockwise rotation with feed from left to right with rabbet down, and the other for counter-clockwise rotation with feed from right to left



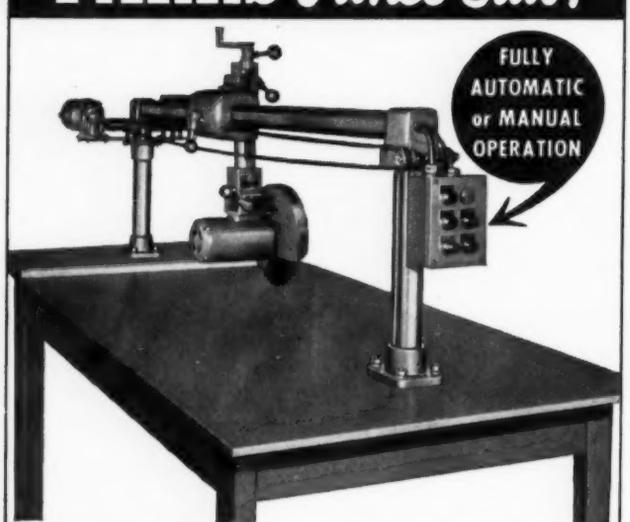
with rabbet down. The machine has a diameter of 2-9/16" and a 3/4" bore that can be reduced to 1/2" with furnished bushings.
Manufacturer: Delta Power Tool Division, Rockwell Mfg. Co., 481 North Lexington Ave., Pittsburgh 8, Pa.
Use postpaid card. Circle No. 10

Panel Saw Cuts All Sheet Material

Plastic laminate—acrylic and phenolic—and all others may now be speedily and accurately cut in sheets, singly, or in combination, repetitively, with the Tri-Rail Panel Saw.

The new saw can cut 14' stock with a high degree of accuracy due to the

Speed up PRODUCTION...with the
PARKS Panel Saw!



Let the versatile Parks Panel Saw put profitable new speed in your production set up. Available in cut-off capacities of from 4 ft. to 10 ft., the Parks Panel Saw has a traverse speed of 60 F.P.M.—with both cut and return fully automatic. In addition, the selector switch may be set on "Manual"—permitting a traverse cut of the saw controlled by the operator from "feed" and "reverse" buttons. What's more, the Parks Panel Saw can be quickly adjusted for bevel cuts, and can be used as a manually-fed rip saw. Available with 1 to 5 H.P. Motor and 10" to 16" saw blade. Write for descriptive literature.

The PARKS WOODWORKING MACHINE COMPANY
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rigidity of the third rail. The model tilts from 90° to 45° to permit precision beveling and straight line cutting.

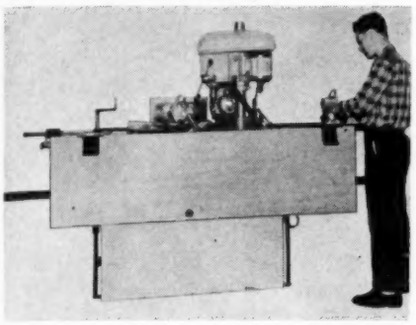
Bevel gears driving screws at both ends raise and lower the three rails as an integral unit.

The third rail itself is the countershaft for the gears and its 3" diameter assures a simultaneous response at both ends when the handwheel is turned.

Manufacturer: Hendrick Manufacturing Corp., Marblehead, Mass.

Use postpaid card. Circle No. 11

Door Unit Machinery



Special equipment for machining and assembling doors is now available from Cole Mfg. Co. The equipment consists of a sizing and boring machine that incorporates a Rockwell-Delta drill press that bores holes for the door lock with a high-speed cutterhead and drill, a jamb routing table for use with a portable electric router, a miter and kerf machine, and an assembly table for use with pneumatic nailer.

One man, using equipment that needs less than 400 square feet of shop space —can machine and assemble a complete door in 11 minutes with Colebilt Door Unit Machinery. The whole job is performed in six steps. Machining is completed in the first three steps on the sizing and boring machine.

Manufacturer: Cole Manufacturing Co., 789 Fourth St., Memphis 2, Tenn.

Use postpaid card. Circle No. 12

Realwood A Versatile Decorating Product

Realwood veneers are a new, highly versatile decorating product. They are finely grained, genuine hardwood veneers in sheet form, prefinished with invisible vinyl coating and are flexible and pliable as leather.

Easily applied, the veneers are available in the following wood species: Walnut, Avodire, Teak, Camphorwood, Zebrawood, Silky Oak, Philippine Mahogany, and African Walnut (Tigerwood).

Manufacturer: Great Eastern Lumber Company, Inc., 2315 Broadway, New York 24, N.Y.

Use postpaid card. Circle No. 13

Faster Installation With New Challenger Latch And Strike

A new, non-mortised latch face and strike makes it possible to install the Challenger 500 series using only three bored holes. No mortising is necessary.

Manufacturer: Challenger Lock Co., Anaheim, Calif.

Use postpaid card. Circle No. 14

New Portable Saw Sharpener

The Easysharp Corporation offers a new compact saw sharpener. Jointing, gumming, sharpening and setting can be done on this new machine. Circular saw blades from 4" to 24" in diameter, including carbide tipped saws, are handled by the EZ-Sharp. The EZ-Sharp features a powerful electric motor which turns replaceable grinding wheels. All adjustments of the EZ-Sharp can be made without the use of special tools.

A cam-operated tooth-setter attachment is available for the EZ-Sharp. With this attachment, the blade is held stationary so each tooth automatically receives the same degree of set.

Manufacturer: Easysharp Corporation, 919 Fulton NE, Grand Rapids, Mich.

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. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer, Roundup and Sandy, Wet, Stringy Bark, Conveyor fed—no attendant required. Positively protected from major damage by tramp steel. All connections locked—nothing to shake loose. Maintenance costs unbelievably low.

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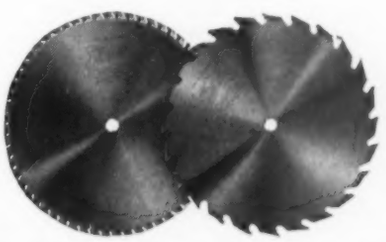

CARBIDE TIPPED SAWS

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Each carbide tip has an extra fine grit, diamond honed, lapped edge for razor keen sharpness . . . for smooth cuts . . . for long life. Fine saw-steel blanks are engineered for carbide tipping to give you that *extra* performance at *no* extra cost.

MEYCO MAINLINE: An extra quality, low cost, standard line of saws, 6" to 16" diameters, with the famous UNI-CHIP grind (alternating double bevel and raker teeth) at low, low prices. **In stock: immediate delivery.**

MEYCO CUSTOM LINE: Finest quality carbide tipped saws designed to meet specifications required to solve YOUR special problems. Enjoy the production advantages of finest quality MEYCO saws at prices no higher than ordinary carbide tipped blades.

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...around the shop

This monthly feature answers readers' questions on common shop problems. If you wish to present a problem, or desire further discussion of problems discussed here, write to the Editor.

Crossbanding Moisture Content

Q. *Our decorative faced plywood has been giving trouble with checks and breaks in the face veneer. Our veneer supplier claims that most of this trouble is due to improper moisture content of the crossbanding used under the face veneer which swells the crossbanding to split the grain and degrade the face. I have contacted a number of sources and received as many answers, all different. Can you advise me how to determine the proper crossbanding moisture content?*

A. Proper moisture content for crossbanding is determined primarily by the kind of adhesive used for bonding it to the core and face veneers. Unlike other plywood components, crossbanding has wet glue applied to both sides to contribute considerable moisture to the plywood construction. It will swell if permitted to draw excessive moisture from the glue lines and cause trouble.

Experienced plywood men use a lower moisture content for crossbanding spread with adhesives mixed with higher solvent volume than those with a low solvent ratio. It is required, however, to provide sufficient moisture content for proper penetration of the wood. Adhesive manufacturers will prescribe proper moisture content ranges for various types of adhesives which generally show an average 5% differential between core and crossbanding and 3% between face veneer and crossbanding. A major requirement is to maintain sufficient moisture content in crossbanding to produce an effective glue line.

Moisture content ranges commonly used for crossbanding with various types of adhesives include: 3 to 5% for wet glue spreads of adhesives with a high solvent volume, such as casein, at room temperature; 5 to 7% for resin adhesives of low solvent volume for hot pressing; and 6 to 8% for resin adhesives for cold pressing at room temperature.

Chain Saw Crew Production

Q. *Chain saws have increased logging production considerably but I do not know the approximate production that can be expected from an average crew. What is the size of the average crew? How are their duties apportioned and what should the average daily production be?*

A. Requirements will vary with size of timber, terrain and other factors. Most logging operations are worked with 3-man crews equipped with chain saws. Each crew operates with one man doing the felling, one limbing and measuring the logs, and one doing the bucking. It is customary for the crew members to change over jobs at regular intervals to relieve fatigue and maintain peak production. Average daily production also varies with type and size of timber and other factors but when cutting medium-heavy timber production will run in the neighborhood of 40,000 to 41,000 board feet of logs.

Auotmatic Anti-Stain Lumber Treatment

Q. *I have just contracted with a large furniture concern to supply its lumber needs for the next year. One of the specifications involves anti-stain treatment of all lumber. I have considered dipping all boards from the edger in a tank but this involves considerable handling. Do you know of any simple way to make this an automatic operation?*

A. Some mills handle lumber in bulk for dipping in anti-stain solution by fork lift truck or some form of lift rather than trying to move the boards singly through the dipping tank. An arrangement used at a small mill in the South might provide a more practical solution.

The anti-stain solution is contained in a large tank installed beneath the edger table and perforated pipes are located at the off-bearing end above and below the boards as they leave the saws. The protective solution is pumped from the tank through the pipes to cover each board completely under control of baffles. All surplus solution is returned to the tank via a wide trough covered with a dual screen to remove any debris that otherwise might interfere with the pumping operation.

Conveyorized Rough Mill For Small Plant

Q. *Our plant is relatively small but is equipped and manned to produce a short line of small tables and solid wood seat chairs. While machines in the rough mill are arranged for straight-line production, handling*

from the kiln truck through the various operations is excessive. Lumber is handled manually off the truck to two cut-off saw operators and cut stock moves from operation to operation on factory trucks which must be unloaded and reloaded at the various stations. We can't afford any fancy free-wheeling material handling system but are interested in a suitable economical system of conveyorized handling suited to our requirements. Can you help us?

A. The conveyorized rough mill of a small plant making a similar line might meet your requirements. This concern made up its own conveyors and auxiliary handling equipment and engineered the installation at a cost reported as being very low.

A lumber lift was installed in a pit located between opposing swing saws. A kiln truck is drawn onto the lift by a cable and winch operated by the cutoff saw operators. The lift is then lowered to bring the top pile level to a convenient working height and raised progressively as boards are removed for cutting. Tailboys fashioned from a series of V-belts and sheaves are located at the offbearing end of the cut-off saws. Powered by take-off from a main belt conveyor, they deliver cut stock to the conveyor to be carried to and from a facing and single surface planer.

Commercial Kiln Drying Charges

Q. *Recently I had 25,000 feet of lumber dried by a commercial kiln drying concern, 10,000 feet delivered from a mill supplying me with lumber and 15,000 feet from my own yard. The bill for drying of the lumber delivered by the mill was 50% more than the lumber from my own yard. Can you explain the reason for this before I register a complaint?*

A. The answer seems quite obvious since the lumber delivered from the mill was probably green while the lumber delivered from your yard was air dry. Commercial kiln drying prices are generally based upon drying well air-dried lumber. Green lumber usually requires longer drying and greater care. It is customary for commercial kiln drying concerns to charge about 50% more for lumber exceeding 40% moisture content, and about 25% more when moisture content is between 30 and 40% at the time of kiln drying.

A typical drying chamber of this kind operates at a constant temperature of 120°F. and desired moisture content is obtained within the following range: 6% - 24% R.H., 7% - 31% R.H., 8% - 37% R.H., 10% - 50% R.H.

A plant using this drying chamber and schedule reports drying time for 3-ply panels of 8 to 16 hours, and up to 24 hours for 5-ply panels.

Finish Pinholes And Craters

Q. *The presence of pinholes and craters in the finish of our cabinets has the entire plant upset. We have finally established the fact that the wood delivered to the finishing department is of the proper moisture content and all finishing materials and operations are the same*

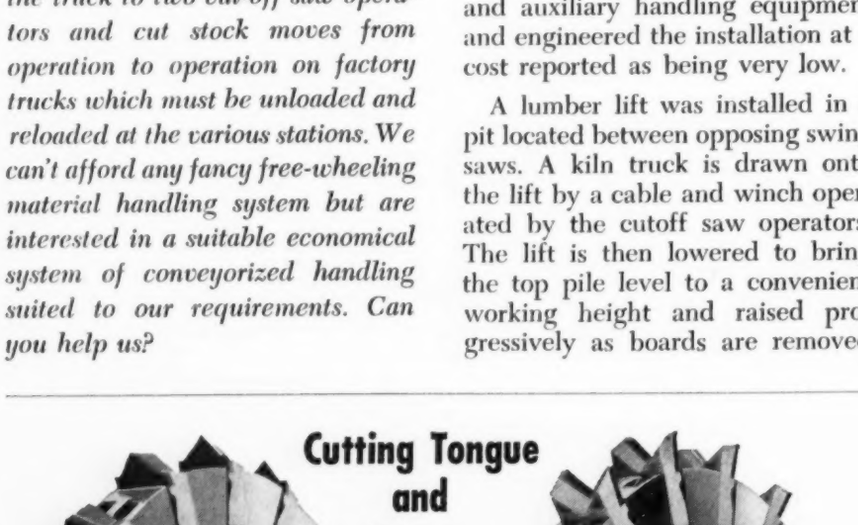

FIG. 682 FIG. 681

Carbide Tipped Bits give long life and high production on BADGER Lug Type Cutterheads

The pair of carbide tipped BADGER Lug Type Cutterheads shown in Figs. 681 and 682 were made for cutting a 90° angle tongue and groove in acoustical ceiling tile and insulating board. The material being cut is highly abrasive fiber and binder. The particular heads illustrated have 12½" cutting circle and 16 bits.

Both the heads and the bits are very precisely manufactured to give accurate alignment. The indexing of the heads is held to extremely close limits, and the bits are precision ground and honed with diamond wheels. The lug type bits are tipped with induction-brazed, tungsten-carbide tips, 3/16" thick, insuring long life. Dynamic balancing is also done to very high standards — less than one-tenth of an inch-ounce. All these high standards assure clean cutting with each bit doing its equal share of work.

The hubs illustrated on the self-centering sleeves are standard hex nut type. Also available are sleeves with knurled nuts with slots for use with a spanner wrench.

BADGER cutterheads are built with not only good engineering design but with skilled workmanship. BADGER engineers are widely experienced in cutting problems dealing with all types of synthetic fiber boards. Why not send samples of your material and sketches of your patterns **ON TO WISCONSIN?** Free engineering service.

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as those used before this trouble occurred. Can you suggest a possible cause that we have overlooked?

A. Since moisture is generally the basic cause for pinholing or cratering in a finish, an investigation of the source is indicated. If it is not contributed by the wood, solvents or other finishing materials, the logical place to look for contamination is at the air supply. This trouble could be caused by oil or water in your compressed air lines. The best check is made after the spray guns have been out of operation for an hour or more. Open the air valve at the spray gun full blast and direct it against a sheet of ordinary kraft wrapping paper. Examination of the paper against a strong light will show the presence of any oil or water that may be blown through the spray gun.

If this test fails to show any contamination, the trouble may be poor atomization of the finishing material which tends to create air bubbles in the wet finish film which eventually pinhole or crater. This trouble may also occur when solvent blisters are formed by too rapid surface drying or failure to provide sufficient flash-off time to evaporate solvents before force-drying in the oven.

Upgrading By Knot Boring And Plugging

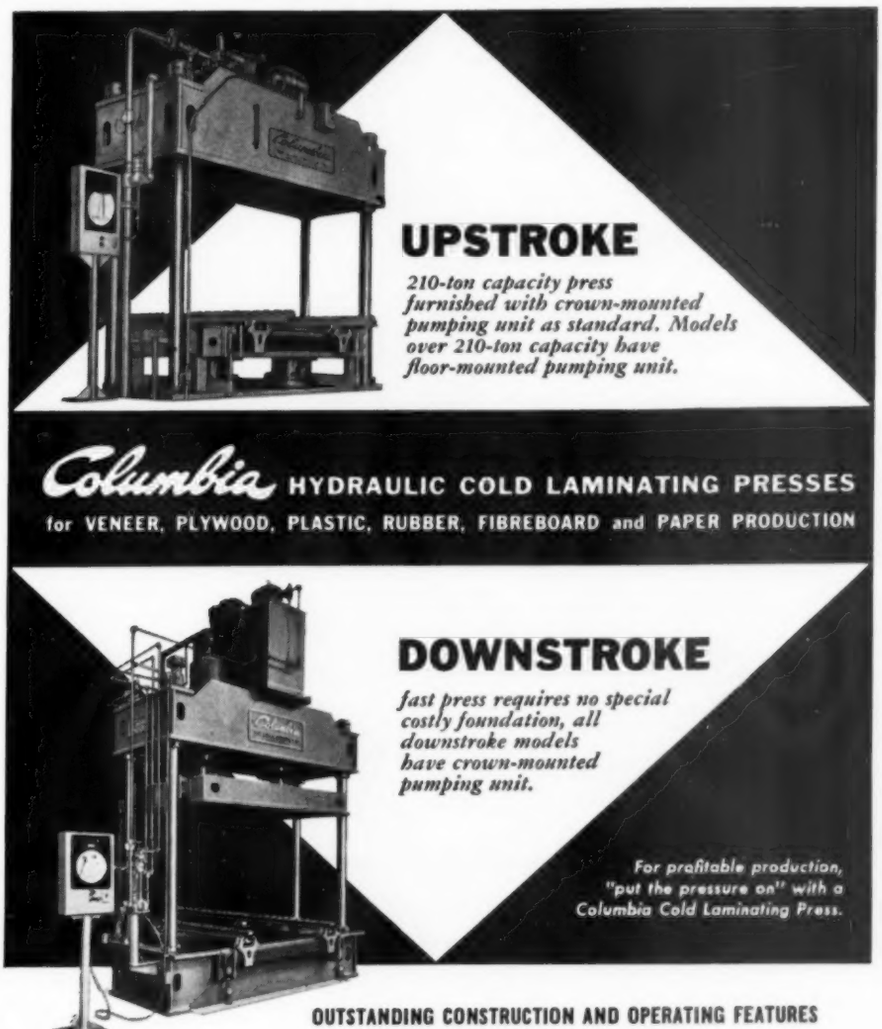
Q. *I have been exposed to a lot of propaganda aimed at selling me advantages of knot boring and plugging lumber to upgrade it to the special Plug Select grade. Can you tell me how much gain in lumber value has been obtained by this method and what the plug specs are for Plug Select grade?*

A. A large lumber concern which bores and plugs black knots up to 1¼ inches in diameter on one side of the board to a depth of about ⅝-inch reported its net gain in value at about $55 per M board feet. Plugs are usually cut slightly oversize for a tight fit from Select trims. Plug Select specifications (based upon 16-foot boards) call for 5 plugs in 1 x 6, 6 plugs in 1 x 8, 8 plugs in 1 x 10, and 10 plugs in 1 x 12.

Structural Glulam Products

Q. *We are having quite a difference of opinion regarding the importance of structural glulam products, even among members of the faculty, and would appreciate answers to the following questions: What is the annual American production in dollars? How does this compare with European production? How much lumber does the laminating industry use? How is the annual glulam production used in this country?*

A. You certainly have gone whole hog, including the squeal. The current annual American production of structural glulam timber has been set at an average of at least $50 million. American glulam production is estimated to be from 15 to 20 times greater than European production. Annual requirements of laminating lumber by the American glulam industry per year runs more than 100 million board feet. Reports on glulam uses vary somewhat but approximate about 55%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210-ton capacity press furnished with crown-mounted pumping unit as standard. Models over 210-ton capacity have floor-mounted pumping unit.
Columbia HYDRAULIC COLD LAMINATING PRESSES
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fast press requires no special costly foundation, all downstroke models have crown-mounted pumping unit.
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for church construction, 24% for commercial and industrial buildings, 20% for schools, gymnasiums and field houses, and 1% for residential construction.

Sizing Hardboard

Q. *During a recent symposium on hardboard and particle board manufacturing methods one of the speakers stated that petrolatum was better suited for sizing hardboard than wax emulsion commonly used for particle board. Is this statement correct and if so why?*

A. A hardboard manufacturer to whom this question was referred agrees that petrolatum is superior to wax as a sizing because it does not decrease hardboard strength as much when using a substantial amount and does not tend to reduce resin bonding properties to as great a degree. The solidification point of petrolatum is well above room temperature and with an oil content of 15 to 30% takes the form of minute crystals when solid. The usual application volume of petrolatum for wet process hardboard is about 1% and from 1 to 2% for semi-dry process hardboard.

Curing Cold Pressed Plywood

Q. *All of our plywood is produced by cold pressing and curing of the bond is accelerated by moving the bales into a hot room or dry kiln. After we remove the plywood from the dry kiln, it is equalized in a conditioning room equipped with mist spray jets to bring the panels up to the desired moisture content. Drying often brings the moisture content down below 5%. Isn't there some way of combining drying and equalizing to eliminate this extra handling?*

A. If adequate controls are provided for temperature and relative humidity, your dry kiln should be able to do the job. Your connotation "hot box" indicates that possibly it does not. There are many good dry kilns available on the market or, if yours is a small plant, it is not too difficult to build a drying chamber capable of maintaining constant temperature with the suitable relative humidity control.

Paper-Veneer Containers

Q. *We have just started to make, paper-veneer containers using a Fir veneer core, overlaid with faces of kraft, cut-to-size and scored for folding. Two major problems have bothered us—a tendency of the rotary-cut veneer to roll and warp and excessive drying shrinkage of the kraft faces. How can we prevent these faults?*

A. The natural tendency of rotary-cut veneer to roll and warp is compensated for in some plants making similar products by distending or prestretching the veneer. One plant uses a tenderizing machine which cuts fine slits in the veneer with small scoring cutters in alternate alignment to relieve stress and flatten the veneer. This process does reduce veneer strength somewhat although it is claimed that the

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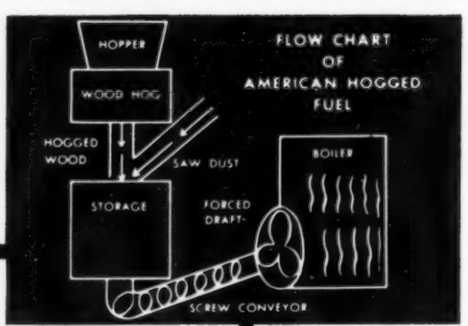

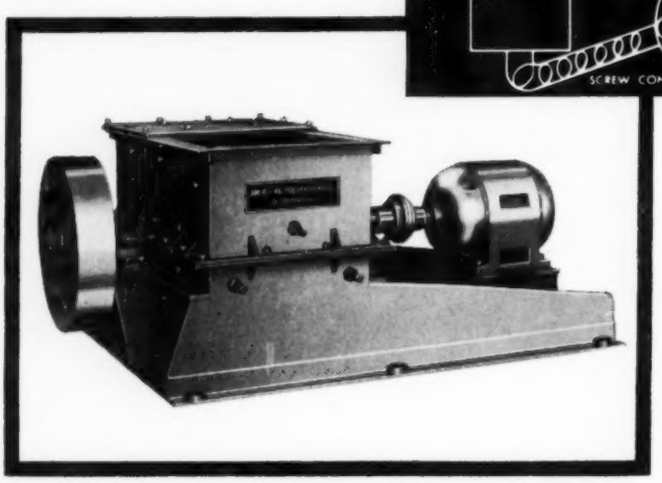

The American Wood Hog easily fits into the fuel picture to turn wood scrap into efficient heat. Whether you fire automatically or hand-feed, the swing hammer wood hog reduces wood scrap and chips into just the right size for free-burning fuel — less smoke . . . less ash . . . more heat per pound. American Wood Hogs are available in a wide range of sizes to fit your operation.

Write for Bulletin H-60. It shows how plants are cutting fuel costs and eliminating a waste problem at the same time.

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kraft reinforcement is adequate to meet container strength requirements. Reduction of kraft drying shrinkage is usually affected by means of treatment with a wax emulsion which not only serves as a moisture repellent but also as a mold inhibitor.

Outdoor Finish

Q. *We have just started making a quality line of outdoor or patio furniture which requires a good, clear finish which must give good weather protection for at least one year. Since this furniture is subject to harder usage than indoor pieces, I have suggested the use of oleo resinous varnish. Our finisher claims that it is too slow drying and cures with a yellowish cast. Is this true?*

A. Oleo resinous varnish has excellent outside durability but does tend to yellow with age. Under normal conditions this finish dries to touch (out of tack) in 30 minutes; cures in 2 hours and is hard in 6 hours.

How Is Cork Harvested?

Q. *To settle an argument, can you tell me how often cork can be harvested from a single tree? Also, how much cork is now being used?*

A. Cork is obtained mostly from an evergreen oak grown in hot climate countries of the Mediterranean basin. The first harvest of cork bark is made when the tree is 15 to 20 years old and succeeding harvests are made at intervals of 8 to 10 years until the tree is about 150 years old.

Actual usage figures are not available, but average monthly imports are reported to have dropped from 11,000 tons about 14 years ago to about 3,000 tons last year. Plastics have taken over many cork applications until insulation has become its largest remaining market. The chief reason for this market shrinkage has been the widely fluctuating price of cork and its cost spread over substitute materials. Comparable insulation boards made of cork and polystyrene plastic were offered at prices of 16 cents a board foot for the cork and 9.3 cents for plastic.

Saw Hammering

Q. *I am serving my apprenticeship in saw fitting at a large furniture plant. My boss knows his business pretty well but was stumped when I asked him why new saws received from the manufacturer never show hammer marks. If these saws are not hammered, how are they leveled and tensioned?*

A. The answer is quite simple. New saws are hammered for leveling and tensioning in the final smithing but these operations are done while the saws are in the black state. The hammer marks are usually removed by a grinding before shipment.

Torn Cross Grain On Finger Joints

Q. *We use an automatic scarfing machine to cut finger joints of stock end-glued for various parts. Our major problem is torn cross grain on the finger joints which degrade this material and causes much of it to be rejected. What can we do about this?*

A. This is a common fault as cutters always have a tendency to tear the face of wood parts when they cut cross grain. The newer machines incorporate a scoring saw on the cutterhead which makes a slight scoring cut ahead of the finger joint cutters which practically eliminates tearing. You should be able to adapt your machine to take a similar scoring saw.

Six ways you benefit by installing a DeBurgh finishing system

Both large and small items may be run on the same DeBurgh conveyor. Pieces can be stopped temporarily or halted indefinitely. Products may be assembled, finished, cooled, rubbed, trimmed and packed for shipment without leaving their original pallets.

The success of modern furniture manufacture depends upon efficiency of production in order to meet and beat competition. The DeBurgh Conveyor Finishing System gives you that advantage. Whether your plant is large or small, the flexibility of the DeBurgh System enables production to maintain a predetermined pace. Such Patented features as the "cycle system" and "close-pack" utilize your labor force to the maximum . . . use smaller dryers, less floor space. This means smaller capital investment, lower operating cost. A DeBurgh System is your most profitable investment!

1 **Save 50%, or even more, on finishing labor cost.**

2 **Increase your output. There's no lost time. Your labor is kept productively employed. It's not unusual for DeBurgh to pay for itself in 10 to 15 months.**

3 **You can save up to 35% in floor space.**

4 **Do your finishing faster with less labor, less employee fatigue.**

5 **You need make no costly plant alterations.**

6 **Your own maintenance crew can do the installation, add to or alter production lines as finishing requirements change.**

You can't afford to be without the DeBurgh Conveyorized Finishing System. Let Koch give you a fast estimate. No obligation. Write for Data File **HWD-4**

SPRAY BOOTHS
Water curtain, or dry spray booths, manufactured by KOCH, are an integral part of your DeBurgh System. Exhaust systems for the spraying and sanding areas are also manufactured by KOCH and engineered to the exact specifications of your production.

FLOW COATER
For many purposes, flow coating is the ideal finishing process. Saves floor space, labor, finishing material. The Zahn Flow Coater, manufactured by KOCH, improves this method with greater economy.

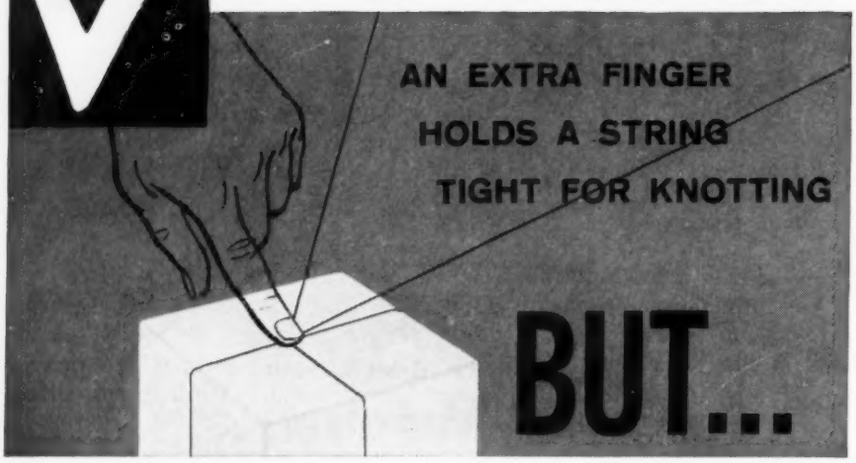
OVENS AND DRYERS
In addition to dryers correctly designed for your system, KOCH offers a complete, ready-to-ship line of cabinet, shelf and truck ovens — gas, oil or electric. KOCH will design and build any oven for any special application.

AIR MAKE-UP UNITS
Avoid operating your plant in a vacuum. Reduce dust, dirt. Replace the air that is expelled through the exhaust stacks with fresh, clean air from economical KOCH Gravity Air Unit or a Pressure Blower System.

GEORGE **KOCH** SONS, INC.
Evansville 4, Indiana
European Representative: COLONAIR, Paris, France

Use postpaid card. Circle No. 262

IT'S A FACT



FOR POSITIVE HOLDING OF COMPONENTS IN JIGS AND FIXTURES...

YOU CAN DEPEND ON DE-STA-CO TOGGLE CLAMPS

Four plywood baby crib headboards routed simultaneously. Simple wood jig with De-Sta-Co horizontal action clamps holds work securely.

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DETROIT STAMPING COMPANY

340 MIDLAND AVENUE · DETROIT 3, MICHIGAN

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AVAILABLE LITERATURE

Literature described here and on following pages is available to our readers. Write directly, or use the handy reference cards—to obtain a copy of any piece of literature.

Variable Speed Drive

Graham Transmissions' Bulletin 551 shows where and how to use an infinite range, variable speed drive of high accuracy. Principles of operation, special controls for a wide variety of speed control systems, complete ratings, and dimensions are presented in the 8-page brochure.

Available from: Graham Transmissions, Inc., Menomonee Falls, Wisc.

Use postpaid card. Circle No. 29

Louis Allis Motors

Twenty-three types of motors with photographs and brief descriptions on application uses, and available ratings, enclosures, and modifications are featured in an 8-page brochure, Bulletin 2651, from the Louis Allis Co.

The line includes standard Squirrel Cage motors in ratings from ¼ hp to 2500 hp and available in open, enclosed, explosion, and weather-protected enclosures along with such modifications as C and D flanges, P base, and vertical mounting.

Other specialized motors include vertical pump motors, immersible motors, brake motors, rapid-reversing motors and a variety of others. In addition, many special mechanical and electrical motor designs can be readily supplied including liquid cooled, precision spindle, and multi-speed types.

Available from: Louis Allis, Co., 427 East Stewart St., Milwaukee 1, Wisc.

Use postpaid card. Circle No. 16

Nacreous Pigments

New material covering Murano Colors, the Mearl Corporation's synthetic pearl essence in color, and Mearlite, a non-lead pearl pigment, is covered in Mearl's revised edition of its 8-page Nacreous Pigment Handbook.

Also included in the latest edition is a table showing the formulation designation of the various synthetics divided into three main categories: surface application: casting in polymerizable resins; and incorporation into plastics.

Available from: The Mearl Corp., 41 E. 42nd St., New York 17, N.Y.

Use postpaid card. Circle No. 17

Caster Catalog

A compact catalog providing essential information about five standard series of Rapistan casters contains 16 pages of information on the selection of casters for a wide variety of applications.

Information on each of the five series is presented to cover wheel diameter and face, model number, rated capacity, wheel type, over-all height, bolt hole spacing on swivel and rigid casters, and information on characteristics of the various casters.

Available from: The Rapids-Standard Co., Inc., Dealer Products, Grand Rapids, Mich.

Use postpaid card. Circle No. 18

Fine Hardwood Veneers

The Fine Hardwoods Assn. has announced the publication of an 8-page brochure aimed at making it easier for the architect and interior designer to specify hardwood interiors. The publication discusses color range, visual texture, and physical texture of hardwoods.

Veneer cutting methods and figure types are illustrated and explained. A chart supplies the commercial names origin, color, and type of figure of 34 major hardwood species. A glossary of terms is included with several other features. The booklet is intended specifically for architects and interior designers.

Available from: Fine Hardwoods Assn., 666 N. Lake Shore Drive, Chicago 11, Illinois.

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You can apply clear overlay papers and wood-patterned papers to inexpensive core materials such as hardboard, particle board, plywood. Protect and beautify natural wood veneers, too. Impregnated with DAPON plastic resin, the DAPONITE papers actually become part of the wood! The finish is tough, permanent, beautiful!

There's no danger of crushing core stock, because you use pressures as low as 100 to 250 psi. That's why you can produce high-grade plastic laminates *in your own plant*—even if you have a small manufacturing operation. You pick the pattern and laminate directly on your core stock—substitute laminating for gluing and save.

24-PAGE BROCHURE For a fresh, new outlook on panel manufacture, write for the DAPONITE LAMINATING GUIDE today! Or, send for a list of DAPONITE stock panel suppliers.

fmc
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Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Dapon Department

161 East 42nd Street, New York 17, N. Y.

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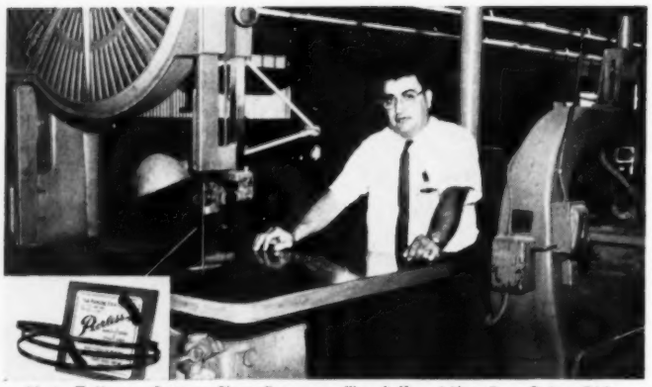

N. L. Zallanta, Pattern Shop Foreman, The Jeffrey Mfg. Co., Cols., Ohio.

"Our experience has shown that THE PEERLESS ARISTOCRAT BAND SAW BLADE best provides the precision, strength and long life we demand."

Peerless buys only the finest Swedish steel. This assures absolute straightness, freedom from camber and caster, uniform temper and tolerance.

Specialists craft the proper hook, an even set, and file uniformly round gullets to reduce cracking. Every tooth is double filed for extra sharpness.

Electrically welded, double drawn and polished, **the Peerless weld is unconditionally guaranteed against breakage.**

Resharpening characteristics make using a dull blade obsolete.

There is a Peerless blade for wood, metal and artificial materials. Blade specifications change, but the Peerless pride of craftsmanship remains constant. **Write for Bulletin 60.**

THE Peerless SAW COMPANY
571 S. THIRD ST. • COLUMBUS 15, OHIO

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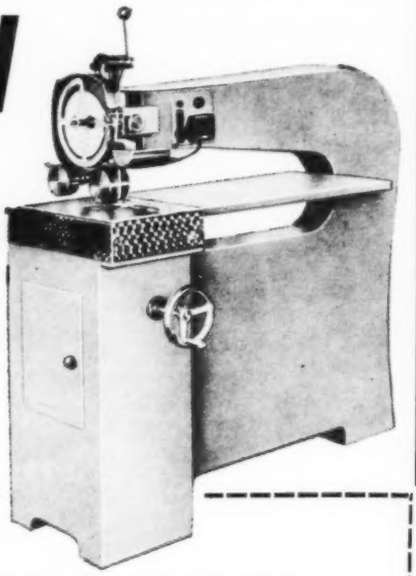
NOW increase veneering efficiency



with

NOTTMEYER VENEER TAPER

- **Uses new tapes that are smaller, stronger, cost less**
- **Handles buckled, brittle as well as straight veneers**
- **Automatically compensates for thickness variations**
- **Self-adjusting power mechanism never hesitates**
- **Costs less to buy and operate than comparable machines**

wilco machine works, inc.

Box 3897 HWD-8 Memphis, Tenn. WH 8-4555

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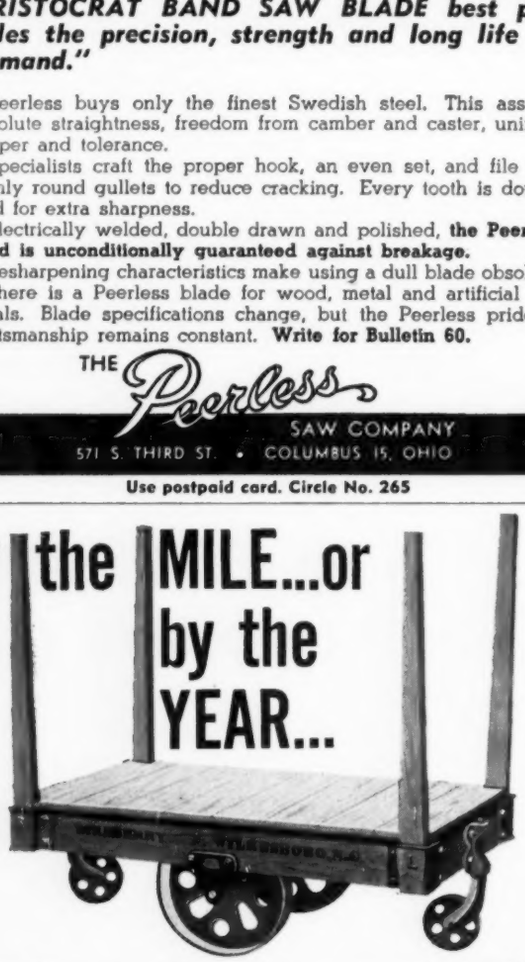
By the MILE...or by the YEAR...



Lineberry trucks cost LESS

Because they are engineered and built to carry extra heavy overloads–to roll easily–to move fast–to save labor and space. So solidly constructed–they give years of service under hardest use. Write for catalog.

LINEBERRY FOUNDRY & MACHINE CO.

320 Forester Ave. North Wilkesboro, N. C.

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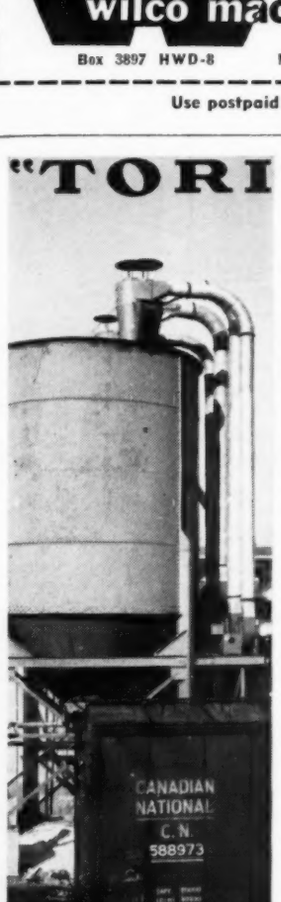
"TORIT'S *dust control system solved our housekeeping problem*"



That's the opinion of Mr. Robert Flaugher, plant engineer at Richards-Wilcox Mfg. Co., who recently installed a Torit flexible system for dust collection in their new woodworking department. Richards-Wilcox, in Aurora, Illinois, is one of the country's largest firedoor and partition door manufacturers.

Mr. Flaugher was also impressed with the other results of Torit's efficiency in removing up to 98% by weight of wood dust, chips, and shavings. "Employe morale was increased noticeably by cleanliness at the plant. Machine downtime is already lower. And the long range effect on the health of both men and machines is bound to be beneficial."

Four Torit centrifugal separators, models #30 and #36, were installed. The flexibility of the system allows individual machine shutoff. Also capacity of system can be increased approximately 25% with nominal cost.

Whatever your dust problem is, there's a Torit system to handle it, efficiently and economically. Your Torit representative can hardly wait to supply all the proof you want.

Just write to:

TORIT MANUFACTURING CO.
1133 Rankin Street, St. Paul 16, Minnesota, Dept. 1526

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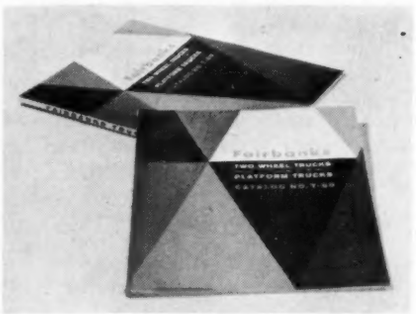
AVAILABLE LITERATURE continued

Hand Truck Catalogue



A 40-page, well-illustrated truck catalogue, No. T-60, provides pictures, descriptions, and full specifications for the entire line of Fairbanks two-wheel and platform trucks.

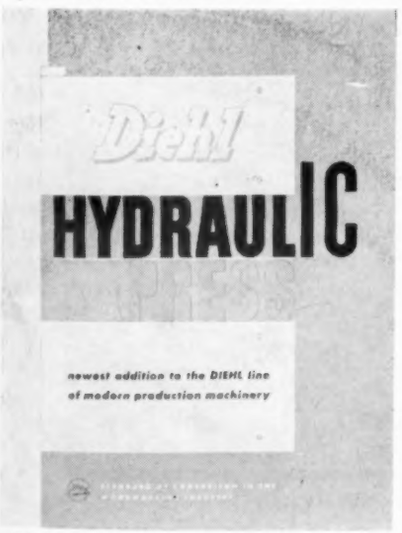
Ranging from general-purpose models in both two-wheel and platform types to such specialities as appliance trucks, the regular lines also include a wide variety of dollies, pushcarts, and skids. Included is a 2-page chart giving recommended load ratings based on standards of the Caster and Floor Truck Manufacturer's Assn.

The chart ratings are not intended to indicate the capacity of the truck wheel, but are the recommended loads that the average operator can comfortably handle on the particular truck. An additional section is devoted to typical non-standard trucks made to customers' specifications.

Available from: The Fairbanks Co., 393 Lafayette St., New York 3, N.Y. or any of its branch offices and warehouses.

Use postpaid card. Circle No. 20

Hydraulic Presses



The new line of Diehl Hydraulic Presses is presented in a recent bulletin. It describes the features of Diehl pumping units and hydraulic cylinders, control console, modular frame construction, and the company's platen design which incorporates internal flow baffles.

Available from: The G. M. Diehl Machine Works, Inc., Wabash, Ind.

Use postpaid card. Circle No. 21

Rivets

Sketches and photographs in a 4-page bulletin illustrate the variety of application for "POP" rivets in the building industry. A feature of the bulletin is a sectional illustration of a building with 14 typical rivet applications described in detail.

Components with one or more rivet applications involved in their assembly or installation are walls, roofs, ceilings, ducts, partitions, and shelves as well as such accessories as lighting fixtures and insulation boards.

Available from: "POP" Rivet Division, United Shoe Machinery Corporation, Shelton, Conn.

Use postpaid card. Circle No. 22

Industrial Ovens

Ramco's twin recirculation, a recently perfected oven principle that provides uniform heat from all sides under full load conditions, reduces heat-up time, and eliminates rejects due to faulty heat processing, is explained in a bulletin 960 on Ramco's Industrial Ovens. Charts and photographs in the 4-page bulletin give physical and performance data of standard and specialized units.

Available from: Ramco Equipment Corp., Division of Randall Mfg. Co., Inc., Electric Oven Division, 801 Edgewater Road, New York 59, N.Y.

Use postpaid card. Circle No. 23

Dust Equipment

A 4-page bulletin describing the complete line of dust collecting, recovery, and classifying equipment. Air pollution, material handling and classification, recovery of material from waste gases, and employee comfort are a few of the broad areas of application for Buell-Norblo equipment.

Available from: Buell Engineering Company, Inc., 123 William St., New York 38, New York.

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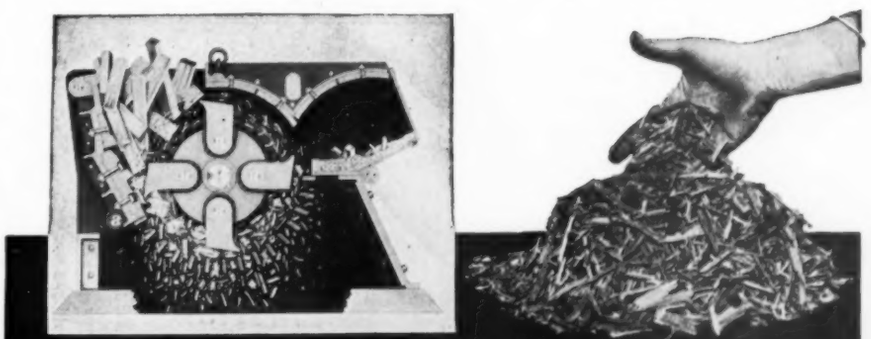
WILLIAMS "No-Nife" HOGS



Make better fuel from wood scrap . . . . and save money!

Burning scrap in jumbled lengths and odd-shaped pieces wastes heat value (BTU's) . . . restricts air flow . . . causes uneven combustion . . . smothers fire . . . creates excessive smoke . . . increases handling time up to four times.

Proper reduction to chips in a Williams Hog yields maximum heat value . . . keeps smoke at a minimum . . . lets one man handle as much in chips as three or four men handle in unhogged scrap.

A Williams *Automatic Installation* pays for itself in a few months.

Write for Illustrated Brochure

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WILLIAMS
CRUSHERS GRINDERS SHREDDERS
OLDEST AND LARGEST MANUFACTURER OF HAMMER MILLS IN THE WORLD

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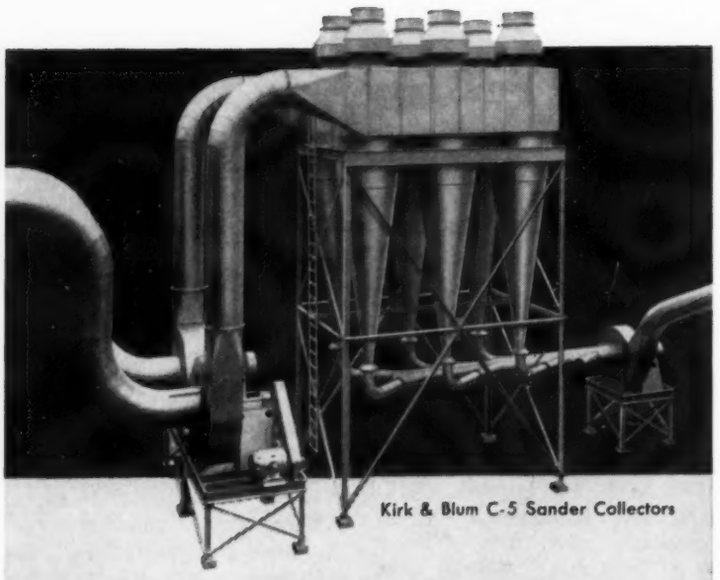
Kirk & Blum C-5 Sander Collectors

SANDING DUST A PROBLEM?

NOT with KIRK & BLUM C-5 Collectors

In the new sanding room of the United Furniture Company, Lexington, North Carolina, cleanliness results where KIRK & BLUM puts "Clean Air, The Invisible Tool" to work. Outside too, the battery of high efficiency KIRK & BLUM C-5 Collectors, handling sander dust exclusively, prevent a dust nuisance.

KIRK & BLUM provides completely integrated dust control systems, from design through fabrication and installation. Why don't you consult KIRK & BLUM regarding your dust control problems?

Dust Free Sanding Room

Kirk & Blum
C-3 Bin Collector

KIRK & BLUM
Dust Control Systems

The KIRK & BLUM Mfg Co.
3121 Forrer Street
Cincinnati 9, Ohio

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Wood Grain Laminate

A new, colorful bulletin, No. 82960, from Swedlow, Inc., announces the firm's new lines of wood grain and decorator patterns of Kevinite—a hard-surfaced, decorative plastic laminate.

Kevinite is available in widths of 30", 36", and 48", or even increments thereof in any length. Kevinite is stain resistant. Its hard-surfaced flexibility permits bending around radii as tight as 3/8".

Kevinite may be worked at temperatures from 185° F. to 285° F. without harm to the material. It will withstand area heat up to 400° F. for five minutes without blistering or delamination.

Available from: Swedlow, Inc., 394 N. Meridian Rd., Youngstown 9, Ohio.
Use postpaid card. Circle No. 25

Flakeboard

The properties and applications of Formica Flakeboard are described in a new 4-page folder which emphasizes board characteristics. End-uses of the product include underlayment for decorative plastic laminates, furniture core-stock, and interior carpentry.

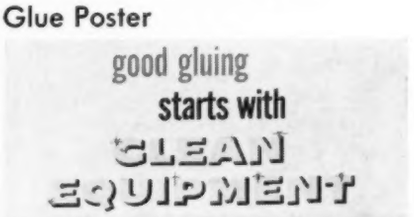
Available from: Formica Corp., 4614 Spring Grove Ave., Cincinnati 32, Ohio.
Use postpaid card. Circle No. 26

Air-Operated "C" Clamps

Airmatic Valve, Inc., has recently published a 4-page illustrated Bulletin 91029, describing air operated "C" clamps. The bulletin supplies description, specifications, outstanding features, ordering data, and dimensions.

Available from: Airmatic Valve, Inc., 7313 Associate Ave., Cleveland 9, Ohio.
Use postpaid card. Circle No. 27

Glue Poster



A colorful 10" by 13" poster which reminds glue users to keep equipment clean for best gluing results has been announced. It is designed to help manufacturers and other woodworking plants reduce glue failures which result from unclean gluing equipment. The poster is printed in bright red, blue, and yellow colors. It is available to all woodworking companies.

Available from: National Casein Co., 610 W. 80th St., Chicago, Ill.
Use postpaid card. Circle No. 28

INDUSTRY NOTES

Wood An Important Feature In New Homes

Many of the new homes will feature the use of timber beams; rafters and joists; and attractive wood millwork and interior finish. Among the reasons, according to the National Lumber Manufacturers Assn., are: new and improved methods of engineering in wood, and development of modern finishes, paints, and adhesives.

Engineering in wood has produced designs which not only save metals, but actually save on the use of wood itself. Wood-trussed construction, utilizing the Teco connector, for example, not only produces a saving in lumber and construction costs but also results in a sturdy, attractive building. New glue laminating techniques permit the production of "shop-grown" timbers of sizes and shapes that were unknown several decades ago.

Wood interior paneling has brought new interest, new character, and new beauty to the interior of today's homes. Home owners and prospective buyers find wood-paneled walls take a house out of the "just-another-house" class. Beautifully grained boards finished to the home-owners' taste are far richer than other wall treatments and eliminate the necessity for frequent redecorating.

Cost has always been an important factor to the home builder. While many home buyers, as well as builders, realize that, pound-for-pound, lumber can do as much work as any other building material, few home buyers realize that, properly engineered, lumber can also be superior on a cost-for-cost basis.

In home building there is no substitute for space. Wood-frame construction means low initial cost and greater flexibility in space design. Trussed rafters and many plank-and-beam framing schemes provide lost-free interiors. More compact frame walls provide more usable living space within the same exterior building dimensions.

A list of booklets and other information on the use of wood is available without charge from the Wood Information Center, National Lumber Manufacturers Assn., 1319 18th St. N.W., Washington, D.C.

Industry's Reluctance To Adopt Needed Reforms Criticized

In a speech at the annual banquet of the Co-operative Kiln Drying Short Course at Purdue University in February, John Reno, of Palco Redwood, was critical of the past reluctance of the lumber industry to adopt needed reforms in manufacture, drying, and other aspects of lumber production and marketing.

He voiced cautious praise of progressive measures that are gaining acceptance in the industry today. Among these he included: finger-jointing for long lengths; edge-gluing for wide widths; mill priming of siding; shipments of packages wrapped in water-repellent paper; car-loading in units for easy fork-lift unloading; and laminating of arches and beams.

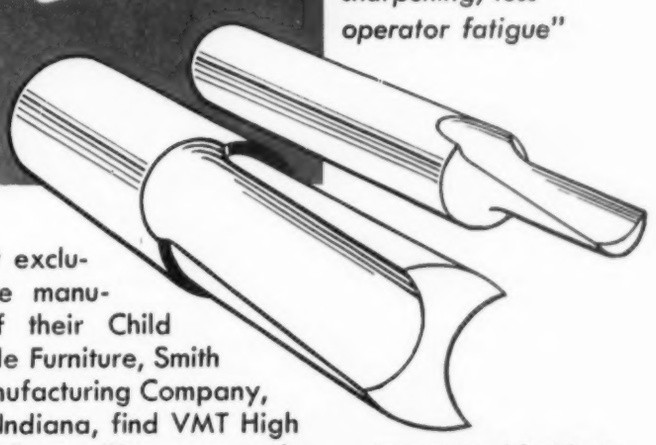
Topic of Reno's address was the "Economic and Technical Aspects of the Lumber Industry, Past, Present, and Future."

Kentucky's Industrial Advantages Outlined

A new four-color, 52-page brochure outlines all Kentucky's advantages for new and expanding industry. The book, just published by the Kentucky Division of Industrial Promotion for the Department of Economic Development, describes Kentucky's assets and advantages for industry in many such

continued

SMITH CABINET finds VMT HIGH SPEED STEEL ROUTER BITS assure *"smooth cutting with no pull, greater endurance, less down time for sharpening, less operator fatigue"*



Used almost exclusively in the manufacturing of their Child Craft Juvenile Furniture, Smith Cabinet Manufacturing Company, Inc., Salem, Indiana, find VMT High Speed Steel Router Bits are superior for grooving and routing operations in all woods, plywood and masonite panel stock.

VMT High Speed Steel Router Bits are milled with a throat and heel clearance that makes the cutter cut freely without much force . . . a savings in breakage of bits . . . a better productive cutter.

Why not give VMT High Speed Router Bits a trial run in your plant?

Virginia MACHINE TOOL CO.

BASSETT, VIRGINIA

Precision Made Tools For The Woodworking Industry—Standard or Milled To Pattern

Use postpaid card. Circle No. 271

NEWEST instruments for quality control – GIVE INSTANT, ACCURATE LUMBER MOISTURE CONTENT!

Models R-6 and V-6 operated by one hand!

Calibrated for 60 hard and soft woods in the 0-25% range, the new Model R-6 is an all-purpose lumber instrument. For all forms of lumber, plywood, and stacks of veneer, the R-6 has a penetration field up to 2", using a radio frequency power-loss circuit.

Model V-6, with a slightly modified electrode, gives the same instant, accurate answers on single thicknesses of all kinds of wood veneers in the 0-15% range.

Both instruments weigh less than 3 pounds. Both are one-hand-operated, leaving the other free for recording and moving test material. Both have self-checking standards—and trimmers to permit balancing on the spot. Battery-operated. Ruggedly built. Circuit board instrumentation.

Complete with carrying case,

$175.00 ea. *f.o.b. Alhambra, California.*

ELECTRONIC MOISTURE REGISTER INSTRUMENTS

For complete information, write to: WW

Moisture Register Company • 1510 Chestnut St. • Alhambra, California

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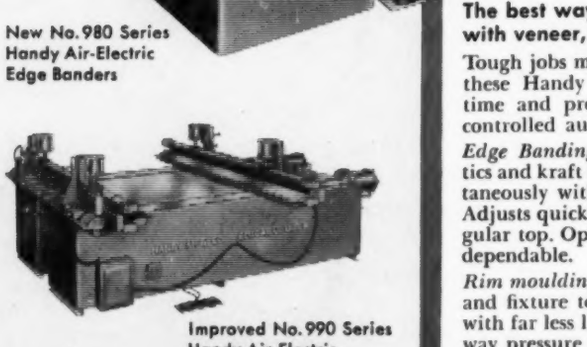
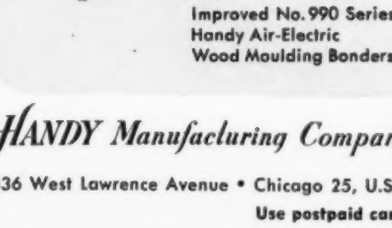
BANDING & RIM BONDING



Better Tops— faster, automatically at lowest cost

New No. 980 Series Handy Air-Electric Edge Banders



Improved No. 990 Series Handy Air-Electric Wood Moulding Bonders

The best way to band tops with veneer, plastic or moulding

Tough jobs made easy—that's what these Handy machines do. Heat, time and pressure are accurately controlled automatically.

Edge Banding with veneers, plastics and kraft is done almost instantaneously with the No. 980 Series. Adjusts quickly for any size rectangular top. Operation is simple and dependable.

Rim mouldings are bonded to desk and fixture tops in a few minutes with far less labor and space. Two-way pressure of the No. 990 Series straightens moulding. Versatile, trouble-free.

The features of these machines are available also in a Combination Bander-Bonder.

HANDY Manufacturing Company

2436 West Lawrence Avenue • Chicago 25, U.S.A.

Use postpaid card. Circle No. 273

The second most important tool . . . for every woodworking shop

A VERSATILE **W&H MOLDER-PLANER** is second only to a saw . . . it molds, planes and rabbets.

OVER 1000 PATTERNS AVAILABLE

FROM PINE PANELING TO FULL ROUND

12 new patented features. Safety, Anti-kick-back and guard make this one of the safest power tools available — Automatic Hold-Down. A low cost 3-in-1 tool: Planes up to 14" wide boards (7" each pass, reversing). Molds stock ⅛" to 8¼" in depth to a satin finish. Rabbets easily made. Set-up change-over made in minutes—makes the unit extraordinarily versatile. Models from $89.95 to $209.00 f.o.b., Milford, New Hampshire. A portable power tool that pays for itself on the first few jobs. "Your savings pile up as your shavings pile up." From $27.50 down & $6.00/mo. 41 Patterns of standard molding cutters available from stock.

For full details write:

WILLIAMS & HUSSEY MACHINE CORP.
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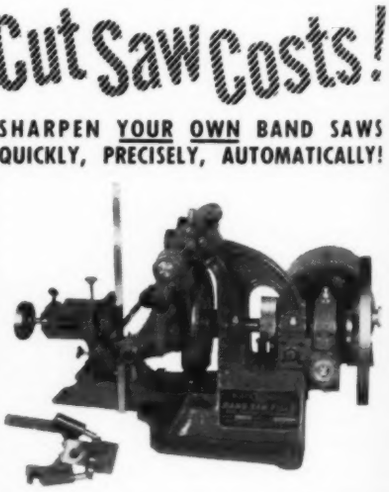
Say you saw it in WOOD WORKING DIGEST

Cut Saw Costs!

SHARPEN YOUR OWN BAND SAWS QUICKLY, PRECISELY, AUTOMATICALLY!



BLACK DIAMOND BAND SAW FILER

Stop slow and expensive hand filing and setting of narrow band saws! Thousands of plants use Black Diamond Band Saw Filer for ⅛" to 2½" saws. Unit automatically sets and files every tooth with precise sharpness. Vertical feed eliminates dangerous blades across work areas. Two models, use only 23" x 20" bench space.

Write for Bulletins and Prices

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factors as central location, transportation facilities, resources in power, in natural gas, coal and other raw materials, new research facilities, manpower, its record number of public and private financing plans, and the new business and "governmental" climates.

A copy will be sent, on request, to business executives interested in Kentucky's opportunities for industry. Write the Division of Industrial Promotion, 320-N14 State Capitol Building, Frankfort, Kentucky.

Joint Wood Seasoning Clinic Planned

A joint wood seasoning clinic will be held in Grand Rapids, Mich., May 18-19. Participating will be the West Michigan Wood Seasoning Clinic, the Midwest Wood Seasoning Assn., and the Grand Rapids Wood Seasoning Group. The program will be an exchange of ideas between kiln-dry operators from Wisconsin, Minnesota, Iowa, Illinois, Indiana, and Michigan.

Future Construction Contracts Hit All-Time High

Contracts for future construction rose 13 per cent in January to $2,485,050,000, a new all-time high for the month.

The January gain marked the sixth consecutive month to show an increase over year-earlier levels, F. W. Dodge Corp. has reported. Commenting on the January figures, Dr. George Cline Smith, Dodge vice president and chief economist, said that "all three major construction categories—non-residential building, residential building, and heavy engineering—contributed to the rise, with particularly sharp increases reported for highways and electric light and power systems."

Products and Services Are Better Than Ever

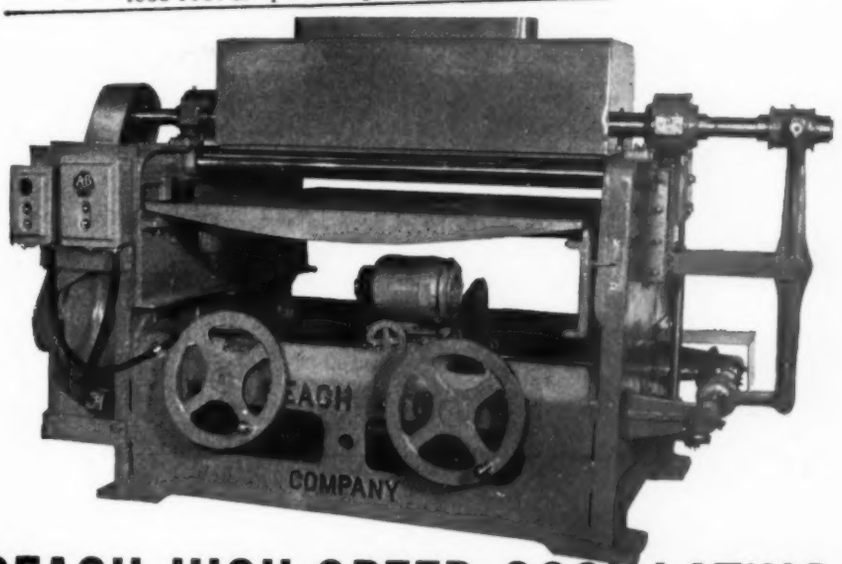
Despite the rising price trend, products and services represent a better buy today than they ever did in the past. This is the theme of "The Story of Prices," a booklet recently published by the Du Pont Company.

The 32-page illustrated booklet describes the price structure as "an inseparable part of the American economy, an economy that is at once consumer-controlled and consumer centered," and shows how the price structure evolved to meet the growing and changing needs of the American people.

Craftsman Lumber Adds Steam-Heated Warehouse

Craftsman Hardwood Lumber Co., Blue Island, Ill., has added a fifth new steam heated warehouse. Its steel and aluminum construction reduce fire hazard and provide warehousing for an additional half-million feet of kiln-dried hardwood under roof. The hardwoods are steel-banded in unit packages and placed in bays according to species, thickness, and grade. This warehousing method facilitates a more comprehensive method of inventorying, speeds order filling, and increases loading efficiency.

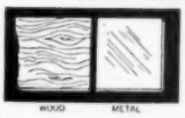
easier, safer operation! • finer, faster finishes! • less cost & operating expense!



BEACH HIGH-SPEED OSCILLATING SANDER *with aluminum drum and variable-speed drive*

Specially designed for schools and smaller woodworking shops. Lightweight, faster oscillating **aluminum** drum, plus even-action positive feed and ball-bearing motors, assure smoother finishes, high production, less "down time" and maintenance cost. Drum oscillation by straight-line thrust—automatically increases with feeding speed. New abrasive fabric polishing wheels can be substituted for the drum to polish and super-finish wood, metals, plastics... a dual purpose machine at **low initial cost.**

- **Five models in widths from 24" to 48"—each with rubber-covered lower feed rolls, aluminum drum, dust hood, electric controls.**
- **Easy to operate quickly and safely with all controls on the front.**
- **Variable feeding speed provides range from 25 to 50 feet per minute.**
- **Drum located above work table for convenient sandpaper changes—takes standard 38" paper without waste.**
- **Springs in flat bed hold stock up to drum—accommodate thickness deviations up or down to 3/16".**
- **Drum formed with 12" aluminum sections fitted with simple, positive-action paper fastener.**
- **Oscillating mechanism is simple and strong with provision to take up any wear in important bearings.**
- **Regular equipment includes variable speed drive with 1 H.P. motor and 5 H.P. motor drive (3 phase; 60 or 50 cycle; 220, 440 or 550 volts).**
- **Also available with motor drive and control in: 7½ H.P., 3 phase, 60 cycle—7½ H.P. and 5 H.P., single phase, 230 volt only—10 H.P., 3 phase, 60 cycle.**
- **Optional instantly-reversing Safety Drum Control on feed mechanism.**



Write today for specifications and prices.
BEACH MANUFACTURING COMPANY
Montrose, Pennsylvania

Specialists in Precision-Engineered Woodworking Equipment.
Use postpaid card. Circle No. 276

Name Gencur De-Sta-Co Assistant Sales Manager

Andrew F. Gencur has been named assistant sales manager for the Finished Products Division of the Detroit Stamping Co., Detroit, Mich.

Gencur has been with De-Sta-Co since January 1928. He progressed through various shops and production assignments to become foreman, and later sales engineer, of the Finished Products Manufacturing Division.

Abel Retires as Weyerhaeuser Engineering Manager

John S. Abel has retired as manager of the engineering department of Weyerhaeuser Co. and Conant Dodge has been appointed as his successor.

Abel became the company's chief engineer in 1943, following some 23 years in the field of power station and industrial design and construction.

Dodge joined the firm in 1946 as assistant chief engineer and became chief design engineer in 1949.

New Penn State Assistant Professor of Wood Utilization

Wayne K. Murphey has been named assistant professor of wood utilization at the Pennsylvania State University.

His appointment, effective September 16, fills the vacancy created by the resignation of Dr. William T. Nearn who has joined the research and development division of the Weyerhaeuser Co. in Seattle, Wash.

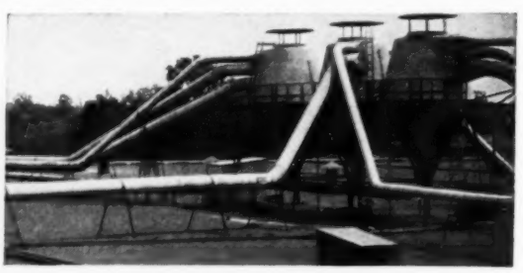
Murphey is a 1952 graduate of Penn State where he received both the bachelor of science and master of forestry degrees in wood utilization.

He has served two years as a technical engineer in the wood preservation division of the Koppers Co. Inc., and four years engaged in research in forest products at the Ohio Agricultural Experiment Station.

Moyie Lumber Completes New Dry Kiln Installation

A modern dry kiln installation has recently been completed at the Moyie River Lumber Co., Moyie Springs, Idaho. The 40-foot-long single track kiln, built by Standard Dry Kiln Co., has a holding capacity of 45,000 feet of 4/4 lumber. Part of a modernization and expansion program started in June 1960, the new kiln is expected to greatly increase Moyie River's present drying facilities.

FOR A SECTION OR A SYSTEM DEPEND ON DIXIE



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Complete systems designed, fabricated and installed by DIXIE Engineers; or fans, collectors and storage bins built to meet your requirements. Write for catalog.

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The Genuine "Jorgensen" HANDSCREW

Jaws adjust to desired angle, distribute even, firm pressure over broader areas of either angular or flat work. A long-time favorite of craftsmen, and still the finest clamping device for nearly all types of work.

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"The Clamp Folks"

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CHAMPION BOLT DRIVER

The NEW SLANT ON BOLT DRIVING

New noiseless, Motor Driven Machine for driving hanger bolts and lag screws into wood furniture parts. ½ HP Sgle. Ph. 110/220 V. motor. Boring spindle for drilling holes for bolts.

Machine with one size chuck, FOB Chicago $190.00
Extra Chucks Each. $10.00

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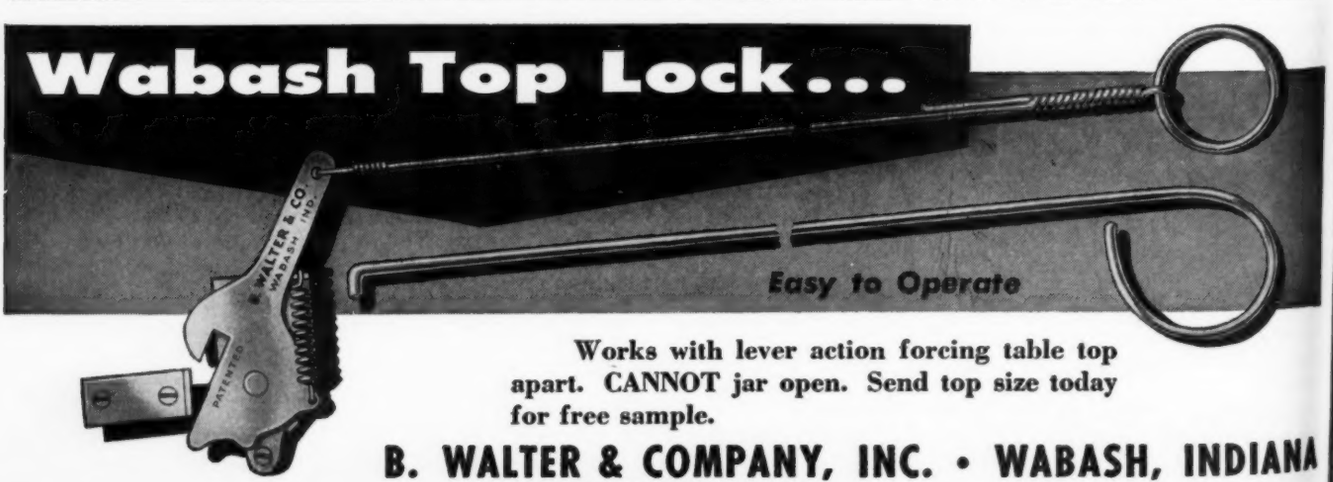

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BIRDS EYE VENEER CO.
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EDMONT CASE NO. 794: Handling rough lumber at a cutoff saw, $2.40 a dozen cotton gloves wore 2 shifts. The Edmont-recommended No. 30 Monkey Grip, palm coated with tough vinyl, wore 15 shifts and reduced glove costs 50%.

Job-fitted glove cut costs 50%

In the case above, the Edmont-recommended glove cut glove costs from 10¢ per man-shift to 5¢ because it is *job-fitted* for handling rough, splintery lumber. For severe abrasive service, triple-thick palm coated styles are available.

Free Test Offer to Listed Firms: Tell us your operation and materials handled. From more than 50 types of *Extra*coated and impregnated fabric gloves, we will recommend correct gloves and send samples for on-the-job comparison test.

Edmont Inc., 1246 Walnut Street, Coshocton, Ohio. In Canada, write Edmont Canada Ltd., Cowansville, Quebec.

Edmont
JOB-FITTED GLOVES

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You don't pay the man who isn't there

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CORLEY
SAWMILL MACHINERY

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one of over 40 styles
"Jorgensen" BAND CLAMP

Specifically designed for the difficult job of clamping round or irregular shapes. Band slips around object. Final pressure is applied by positive screw action.

with canvas or steel band

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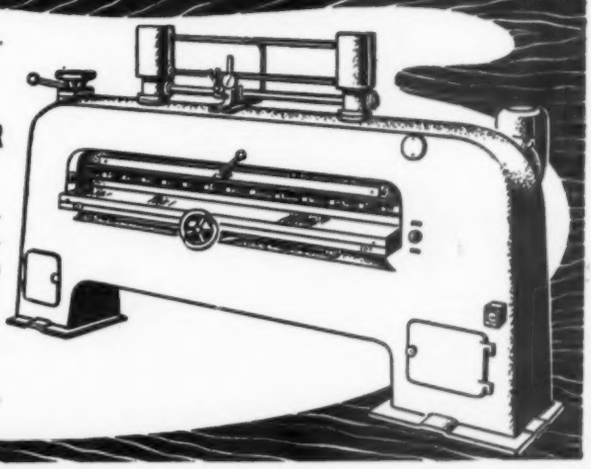
Production time is your profit factor.

And the latest in efficiency, jointing veneer of any thickness, is the new

RÜCKLE AUTOMATIC JOINTER FOR PACKS OF VENEER
(with patented finish cutter)

The pace-setter in quality, efficiency, and economy. Perfectly-jointed packages of veneer—*any thickness!* Find out for yourself why this precision-built jointer is producing top earnings for other leading manufacturers. Call or write:



KARLTON MACHINERY CORPORATION
210 E. OHIO ST. CHICAGO 11, ILL.

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INDUSTRY NOTES continued

New International Paper Sales Service Supervisors

The appointment of three sales service supervisors has been announced by the Long-Bell Division of International Paper Co. Albert A. Clearman was named supervisor of kitchen cabinets and cut stock; Walter C. Ring was named supervisor of flakeboard products; and F. N. McCullah is now supervisor of plywood. Headquarters of the three men will remain in Longview, Washington.

Soderhamn Enlarges Portland Sales Staff

Soderhamn Machine Manufacturing Co. has announced the addition of two new representatives at its Portland, Ore., sales office. Robert J. Hill, formerly chief engineering, Mater Engineering, will coordinate engineering and production for Soderhamn's Portland Office. George W. Thoming, formerly associated with Hoffman Construction Co., of Portland, has been appointed Soderhamn sales representative, covering Oregon and Washington.

Link-Belt Appoints Wendell Advertising Manager

Erwin A. Wendell, assistant advertising manager, has been appointed manager of advertising and public relations for Link-Belt Co., with headquarters at the company's executive offices in Chicago. The appointment follows the retirement of Bertram V. Jones, who held the position for the past ten years.

Wendell joined the company's engineering department at the Pershing plant in Chicago in 1917. He entered the sales department in 1921 and served the Chicago territory until 1937 when he was appointed manager of the St. Louis district office. In 1944 he became manager of the Chicago District office, and three years later was named sales manager for the Link-Belt Caldwell plant in Chicago.

New Palco Market Research, Product Development Manager

Lawrence H. Price has been appointed to manage market research and new product development for the Pacific Lumber Company's California Redwood, Douglas Fir lumber, and plywood lines. His activities will cover development of new products, improvement of existing product lines, and studies to determine improvements in application.

Price has an extensive background in forest products, including 14 years with Timber Structures, Inc., of Portland, Ore., as well as previous experience in sawmill operations, and lumber procurement, production, and sales. He is a graduate of the College of Forestry, University of Washington.

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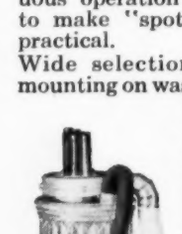
Low Cost—Portable—Dust Control

Wherever there's dust, there's room for a low-cost, portable **DUST-MASTER**, designed and proved for heavy-duty, continuous operation . . . yet priced to make "spot" dust control practical.

Wide selection of units for mounting on waste cans, and 55-gallon drums. Also available in cabinet type models and for mist collection, as well. Units feature non-sparking aluminum fan, direct-connected motors for 115/230 volts, and 220/440 volts, up to 1½ hp. Cyclone type with cloth after-filter for high efficiency. Suited for use in wood, plastic and metalworking to pick up dust, chips, shavings, lint, etc.

MODEL 100



MODEL 50

1 hp model complete, less drum $195.00

Write For Detailed Literature.

Some good territories available for representatives.

CINCINNATI FAN & VENTILATOR CO.

3548 Montgomery Rd. Cincinnati 7, Ohio

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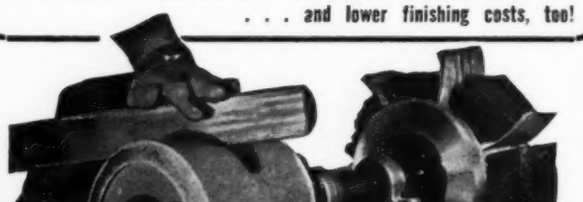
SAND CURVED PARTS FASTER!

. . . and lower finishing costs, too!



USE A

Sand-Rite "Duo" Sander

Sand Parts Like These With Ease:

- CHAIR LEGS
- TABLE LEGS
- CHAIR ARMS
- BRUSH HANDLES
- TOY PARTS
- GUN STOCKS
- DISPLAY FIXTURES
- RAILINGS

and many others

Eliminate hand sanding of irregular shapes and contours on wood parts, while maintaining high quality finishes. The inflated pneumatic drum will always conform to the contoured shape of the part being sanded.

The Sand-Rite Sander can be ordered as shown with pneumatic drum and rotary brush sanding head or with 2 different size pneumatic drums or with a single head of drum or brush. Pneumatic drums are available in 2", 3", 4" and 6" dia. and can be purchased separately as spares or replacements.

Write for full information today

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Leader in Wood Stabilization

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Air Compressors, various sizes
Band Saws, New Delta 20" bb. dmd.
Bandsaws, New Moak 36" bb. dmd.
Borer, Greenlee No. 366 Vert. Univ. Spdles 10, dmd.
Borer, Greenlee No. 369 5 ft. vert. 4 spdles, DMD.
Borers, Andrews 3 spdle horiz. bd.
Borers, Andrews Sgl. Spdle. dmd.
Borers, McKnight 88C, Chucking DMD.
Borers, Style K Root Horiz. Borers. DMD.
Borers, Moak & Pryble 2 spdle. horiz.
Clamps, Bell Pneu. Frame Clamp
Clamps, Handy Frame Clamps
Clamps, Lancaster No. 100C Case
Clamp, McKnight Chair Air Opr.
Clamps, Taylor 12 Sec. Wheel 6" Jaws
Clippers, Coe 88" bd and motor
Dovetailers, Dodds 10-15 & 20 Spdles.
Dowel Driver & Gluer—Bell No. 8 dmd.
Dowel Machine, Bell No. 1A and motor
End Matchers, Yates E1 pb. bd.
Frequency changers, 75 DMD.
Glue Jointers, Jenkins 343B bd. DMD.
Glue Spreaders, Francis 12" Sgl. Roll, V-drive
Glue Spreader, Union 48" dbl. rubber rolls, DMD.
Grinder, Buffalo 76" knife DMD.
Grinder, Hanchett 38" knife
Jointers, New Moak 12", bb. DMD.
Jointers, 8" and 16", 24" & 30" & 12"
Lathe, Yates No. 74 Auto. Turning BB. & Motor
Miscel: Bradford Bed Rail Bore and Saw PB, BD.
Mortiser, New Britain No. 7 bd. & motor
Mortiser W & M No. 284 Sgl. Spdle. bb. DMD.
Mortiser, Whitney No. 61 Osc. DMD.
Moulders, Amer. No. 35—10" BB. DMD.
Moulders, Hermance 12" BB. BD. & Motor
Moulders, Vonnegut 12" elec. bb. DMD.
Moulders, Yates C-55, 12" bb. dmd.
Planers, Berlin 36" round belt DMD.
Planers, Buss No. 4—30" single bb. DMD.
Planers, Buss 30" & 40" Sgl. Surfacers, BB. DMD.
Planers, Buss 30" dbl. bb. v-belt & motors
Planers, Whitney No. 29—36" Sgl. bb. DMD.
Planers, Whitney 32A—30" Sgl. bb. DMD.
Planers, Y-A No. 186, dbl. 20" DMD.
Planers, Yates No. 177 30" dbl. bb. DMD.
Planer-Matcher, Yates A1-15"x6" square heads, pb. bd.
Redrier, Merritt 12 plate 36 x 72
Resaw, F & E No. 186—42" bb. bd.
Routers, Porter 666, High speed, DMD.
Router, Ekstrom-Carlson No. 327 bb. dmd.
Router, Yates-Am. U-9 bb. dmd.
Sander, Pearson Sgl. Spdle. Vert. DMD.
Sanders, Mattison No. 172 Edge belt, DMD.
Sander, Mattison No. 124 stroke
Sanders, Marshoke Dbl. Arbor Pneu., BB.
Sanders, Nash No. 24—6 Spdle. DMD.
Sanders, Nash No. 10—6 Spindle and Motors
Sanders, Niagara brush, bb. DMD.
Sanders, Oakley, Drawer, MD.
Sanders, F & E 60" 3 drum roll feed, DMD.
Sander, W & M No. 171 belt bd. DMD.
Sanders, Yates-Amer. 84 Edge Belt bb. DMD.
Saws, Beach dbl. cutoff, bb. dmd. 78" x 3 ft.
Saws, Amer. No. 10 T.T. Variety saws, DMD.
Saws, Diehl No. 75 and 55 Str. Line dmd.
Saws, Mattison No. 207—bb. DMD.
Saws, New Delta 12" tilting arbor DMD.
Saws, New Delta Radial
Saws, Wilkins-C No. 87 dbl. cut-off saw, 60"x100", BB DMD.
Shapers, Porter Dbl. Spdle. BB. DMD.
Shapers, Porter No. 105 Sgl. Spdle. bb. DMD.
Shapers, Whitney No. 389, double bb. DMD.
Shapers, Whitney Dbl. Spdle. MD BB
Shapers, New Moak single spindle, bd. DMD.
Taping Machines, Dennis No. 2
Tenon Heads, single and double end
Tenoners, Double End, Wilkins-Chal. No. 70 bb. dmd.
Tenoner Sgl. End, Famous DMD.
Motors, Electric, all sizes
McKnight 4CM boring & sawing
Many other items, send your inquiries

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Onsrud W-18, and W-28 Automatic Shaper. State Serial number, age, condition, clamps, cutters, etc. Give full details for prompt consideration.

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WANTED—USED HOG

Mitts & Merrill Model 15-CSE or 15-CSF flat face sectional cylinder hog with roller bearings.

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All makes and sizes
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PRICED FOR QUICK SALE FROM STOCK

Air Compressor—Gardner-Denver ACM-329-LT
Band Mill—Fay & Egan 54", ball brg., right hand, with carriage
Band Saws—32"; Fay & Egan 36"; Tannewitz 36"; American 36" and 40"; Yates-American 36" and 42"; Powermatic 20"; Oliver 30"
Band Resaw—Fay & Egan No. 480; McDonough 54"
Borers—Walker-Turner radial arm; Yates U-31 single vertical
Clamps—bar; glue
Drill Press—Delta floor model
Glue Spreader—Black Bros. 16"
Grinders—pedestal type dbl. end; Yates cutterhead; Miller-Falls
Hand Planers & Jointers—Fay & Egan 6", 16", 20"; Oliver 12"
Mortisers—Fay & Egan No. 509 and Greenlee No. 228 Hollow Chisel; Bell No. 81; Gerr-Schmaltz vertical; Fay & Egan No. 924
Moulders & Stickers—Hall & Brown; Fay & Egan No. 209; No. 775; XL Moulder; Hermance No. 60 and No. E-1 8"
Planers—Whitney 30" single; Buss No. 4 30" dbl.; Buss No. 88 36" dbl.
Rod & Dowel Pointer—Fay & Egan No. 7 Rod
Routers—Ekstrom-Carlson No. 327; Porter No. 612; Valley City
Sanders—Yates No. 401 42" 3-drum; Yates No. 431 30" 3-drum endless bed; Beach-Heath 2-drum
Saws—chain-feed rip; combination, variety; swing cut-off; radial
Shapers—Fay & Egan No. 552 and No. 952, American No. 1, Oliver, Delta, Porter single; Sidney "Famous"; American No. 30; Greenlee No. 182, Buss double
Tenoner—Greenlee No. 533; Fay & Egan No. 505

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Factory Rebuilt Machines

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Woodward Machinery Company
309 E. Second St. **Cincinnati 2, Ohio**

Blower; 25 in Sgl. $60
Borer; 28 in. 6 sp. hor. $260
Borer; 4 sp vertical Universal $300
Jointer; 8 in. Crescent $100
Jointer, 8 in. and Table saw $150 for both
Radial Saw; New sgl Ph $165
Ripsaw; self feed BB $200
Saws Table & Variety $35 and up
Shaper; sgl BB MD bit bits $80
Stapler; Bostitch floor type $50
Swing saw; H & A No. 5 with mtr. $85
Veneer Press; Handy 3 x 5 ft. $185.
Numerous other machines.

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Borer, Greenlee 366 72" Vertical Gang
Borer, Andrews 72" Vertical Gang
Borer, Andrews, 120" Vertical Gang
Moulder, Mattison 229 8"x4" Electric
Moulder, Mattison 222 6"x4" Electric
Moulder, Newman 412 12"x4" Electric
Moulder American 35 6"x4" Electric
Moulder, Woods 137M 6"x4" Electric
Moulder, Woods 132B 6"x4" 5 Head B
Moulder, Vonnegut "V" 4"x4" Electric
Moulder, Vonnegut 6" & 12" Electric
Moulder, Hermance No. 50 & 60" Belt Dr.
Matcher, Yates-Am. A-20 20"x8" DMD
Mortiser, Bell 80 90" 12 Heads DMD
Resaw, Mershon 54-C 54" Ball Bearing
Resaw, M-J 210 54" Ball Bearing
Router, Porter 500 7200 r.p.m. 5 HP
Saw, Diehl 75 Straight Line DMD
Saw, Mattison 202 Straight Line DMD
Saw, Mattison 207 Straight Line DMD
Saw, Newman 37A Gang 5" Arbor
Saw, Tannewitz 48" Band Scroll
Sander, Smith 404-B 42" Endless Bed
Sander, Yates 431 43" Endless Bed
Shaper, Whitney 135 & 150 Doubles
Surfacer, Greenlee 110 36" Single DMD
Surfacer, Whitney 32 30" Single DMD
Surfacer, F & E 186 30" Single DMD
Surfacer Whitney 24 30" Double DMD
Surfacer, Yates-Am. 177 30" Double DMD
Double End Bore-Saw-Chuck McK. 4-CM

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Borer, Greenlee No. 386-C 12' Vertical
Borer, Root Style GM, sgl spdle, vertical
Borer, Root Style G-250, sgl spdle, vertical
Borer, Brookman, two spindle, horizontal air operated
Borer, Moak two spindle, horizontal, air operated
Clamp, Black Bros. No. 200 sash & door, air operated
Clamp, Handy No. 944 door, air operated
Clamps, Handy and Buss portable, drawer
Clamp Carrier, Billstrom 39-Section
Clamp Carriers, Taylor, Palmer, Billstrom
Frequency Changers, 20 KW, 25 KW
Glue Spreader, Black Bros. double roll 22-D-62"
Jointer, Jenkins 8' Saw type veneer
Jointer, Porter 20" hand, ball bearing, V-belt drive
Jointer, Porter Facing Planer with Jackson & Church feeder
Lathe, Oliver hand turning
Mortiser, Bell No. 80C chain, multiple head, air feed
Mortiser, Bell No. 80 hollow chisel, 6 spindles, air feed
Mortiser, Oliver No. 92-D hollow chisel
Moulder, Hermance 6" ball-brg. m-dr.
Moulder, Vonnegut 4" and 9", direct m.d.
Moulder, Mattison No. 276, 6", direct motor drive
Planers, Buss 30" & 40" ball brg. single
Planer, Buss No. 208, 20", single
Planer, Crescent 24", single
Planer, Whitney No. 29, 36", single
Planer, Buss 36", double, motor drive
Planer, Whitney No. 33, 32", double
Planer, Whitney No. 24, 30", double
Planer-Matcher, Vance Model 67, belt drive
Presses, Handy & Francis sectional screw
Press, Francis 30" x 40" hydraulic cold
Presses, Berthelsen Factory Rebuilt 60" x 80" Two Opening Hot Plate
Presses, Farquhar hot plate, 20" x 20", 7 opening; 14" x 35", 10 opening
Router, Ekstrom Carlson No. 327
Router, Onsrud Type W-147E radial arm
Router, Onsrud Model A-1 radial arm
Router, Porter No. 622 Sliding head
Sander, Double belt, Oakley Model E
Sanders, Nash No. 10, No. 87 automatic
Sander, Curtis Model 8 hand stroke, belt
Sander, Peerless flat bed
Sander, Smith 43" Endless Bed
Sander, Bouligny Model 100 Molsander
Saws, Buss, 86" double cut-off, hand feed
Saw, Bell No. 12B double cut-off and miter
Saw, Challoner No. 820-S Double Cut-Off
Saw, Jenkins No. 90 Double Cut-off
Saw, Mattison No. 205 Rip
Saw, Mattison No. 207 Rip
Saw, Oliver No. 116-D Band
Saw, Oliver No. 94-D cut-off
Saw, Porter No. 43-20S Cut-Off
Saw, Tannewitz Type U, miter
Saw, Yates-American G-89 tilting arbor
Shaper, Buss No. 8 double spindle
Shaper, Onsrud W-124, direct motor, with frequency changer
Shaper, Porter No. 203 Single Spindle
Shaper, Whitney dbl. spdl., b.b., belt drive
Veneer Clipper, Sheridan 42"

Miscellaneous Machines: Gardner Denver Model AAB Air Compressor, Roller Conveyors, Bell No. 50 dowel machine; McKnight corner block machine; Onsrud G-16 bit and cutter grinder; Spartan auto nailers. This is a partial list. We are adding to our inventory constantly.

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Valley 2-spdl. horiz. foot-op. m-dr.

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Doig "Universal" 4-T, CB Nailer, MD
Mereen-Johnson No. 435H 12-ft. chain-feed multiple cutoff and dado, BB, MD.
Saranac No. 1 RA sgl. hd. Driver, MD
Morgan 10-T 23⅛" CB nailer, clincher, comp. chucks
Morgan 18-T, 48" OB Nailer, clincher, comp. chucks MD
Morgan 30-T 90"-79" OB Plyboard Cleater, Comp. chucks, MD, modern
Morgan "Camera Model" sgl. end lockcorner cutter, MD
W & M No. 290 lockcorner cutter, sgl. BB, MD

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Bell No. 24-B, 80" dbl. saw, bore chuck, MD
Nash 4-spdl. chair seat borer, M.D.

CLAMPS
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Billstrom 6½' 39-sec. Clamp Carrier, MD
Union No. 1060A Rev. Case, opens 60", air-op.
Handy No. 401A Rev. Case, opens 72", air-op.
Handy No. 40 12x24x72" drawer clamp
Handy No. 418, end & frame, 72" jaws, air

DOVETAILERS
Dovetailer, Dodds 12 and 15-spdl. m-dr.

DOWEL MACHINERY
Bell No. 3 Cutoff & Pointer MD
Bell No. 4-A, ¼ to 2" Cap. B.B. M-dr.

JOINTERS
Northfield 12" hand, ball-brg. MD

LATHES
Mattison No. 57-D 42" auto. BB, M-dr.

MOULDERS
Smithway 6 x 2" all electric
Mattison No. 226, 12-in. ball-brg. all elec.
Vonnegut 12-in. ball-brg. all elec.

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Y-A 24" with J. C. feeder, BB, MD
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Porter No. 612, high speed, 2 HP
Yates-Am. Model U9, high speed, 3 HP

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Mattison No. 124 6-ft. auto. stroke, MD
Mattison No. 138 B hand block, BB, MD
Nash No. 6 dbl. belt dowel & rod
Newton E-30 oss. edge, MD
Redin-Ekstrom No. 12 oss. edge, MD
Yates S-4 non-oss. edge MD
Yates No. 413, 31" 2-dr. end. bed, MD
Yates No. 401, 55" 3-drum roll feed, direct motor driven
Smith No. 505-C 49" 3-dr. end. bed, BB, MD
Smith 60" 2-dr. end. bed. BB. MD.

SHAPERS
Walker-Turner, sgl. hi-speed, 1½ HP

SURFACERS
American No. 1½, 24" Sgl. BB, MD
Buss No. 4LM, 30 x 8" sgl., BB. MD. motor drive.
Whitney 26 x 7" double, BB, MD
Whitney No. 24, 30 x 7" dbl. BB. MD.

SAWS
Diehl No. 75 ch-feed, BB, MD
F & E No. 386 chain-fd., BB, MD
H & A No. 55 self-contained swing, 5 H.P.
Mattison No. 207 Chain feed, BB, m-dr.
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Black C-4 60-gal. glue mixer, MD
Capitol 65 and 76" sizer Veneer Clippers, MD
Cardwell 114" Veneer Tenderizer M.D.
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Root G250 foot-feed vertical single
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Root G300 heavy duty hyd. vert. single
Root CCXH 10' 22" hyd. univ. vert. mult. spdl.
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Lancaster No. 1100C 80" Air Rev. Case Clamp
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Francis No. 280, 48" plate, foot operated
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American 12", b.b., dir. motor dr.
American 20" & 24", b.b., v-belt dr.
Diehl No. 60 auto. edge jointer, d.m.d. with Porter infeed & turnover conveyors

LATHES
Yates-American T-5 40", b.b. auto. turning
Mattison No. 57B & 57D 42" auto. turning
Blount D-13, 12" x 8' hand turning, m.d.
Blount 12" x 25" four speed hand turning

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Bell No. 80A multiple chain saw, 5 heads
Wysong & Miles No. 321 foot feed, hol. chisel
Wysong & Miles No. 284 auto. hollow chisel

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American No. 3, 6" 4-side motor driven
American No. 24, 12" 4-side motor driven
Woods No. 137M—6" four side b.b., d.m.d. with lag bed feed chain & hopper feed

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Parks No. 96, 12", b.b., d.m.d.
Yates No. 156, 20" d.m.d., sect. rolls
Fay & Egan No. 224, 24", b.b., d.m.d.
Yates-American B-7, 30", b.b., d.m.d.
Greenlee No. 105, 30", b.b., d.m.d.

SANDERS
Oliver No. 190D univ. scroll edge sander
Wysong & Miles No. 273 univ. belt sander
Wysong & Miles No. 291, 6' hand block, b.b.
Wysong & Miles No. 294 auto. stroke sander
Mattison No. 124 auto. stroke sander
Lancaster No. 600 drawer sander
Vonnegut SEM dbl. end spindle sander
Pearson Model A Moulding sander
Heath 24" 2-drum roll feed sander
Smith No. 404D, 60" 3-drum endless bed sander

SAWS
Porter A-43 5 HP cut-off saw
Bell No. 216 cut-off saw, motor-driven
Beach No. 3 double end cut-off saw, m-d.
Yates-American No. 1 tilt table saw, d.m.
Oliver No. 173-B jig saw, motor driven

SAWS—POWER FEED
Yates-American GG-1 self feed gang rip saw, b.b.
Diehl No. 75, b.b., 15 HP d.m.d. chain feed
Mattison No. 207, b.b., d.m.d., chain feed

SHAPERS
Delta single spindle, b.b., m.d.
Porter No. 200SVM single spindle, b.b.
Whitney Nos. 134 & 139 dbl. spindle, b.b.

MISCELLANEOUS
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Hawker No. 2 dowel machine, b.b., m.d.
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Box Board Notcher: No. 410 Mereen-Johnson
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Cut-Off Saw: Double Mitre, Dauber Bell, DMD.
Filer: Foley Auto. bench model M.D.
Hand Hale Machine, Automatic
Jig Saw: Delta 24", stand and motor
Jointer: 12" 16" & 20", Rd. cylinder
Mortiser: Chain, New Britain No. 2, with motor
Mortiser: Hollow Chisel Crescent, DMD
Mortiser: Hollow Chisel, Fay & Egan No. 379
Mortiser: Hollow Chisel, Greenlee No. 228
Moulder: American 10" Babbitt Bearing & Motor
Moulder: 12" Y & F Belt Drive. Babbitt Bearing
Moulder: XL 4" x 2' Moldmatcher, single phase
Morgan 3 Head Corrugated Driver, M.D.
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Printer: 2 Color, 20" x 42" Morgan
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Radial Saw: DeWalt 5 HP. Sgl. Ph.
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Rip Saw: Roll Feed Yates-American, M.D.
Rip Saws: Box Makers Mereen-Johnson, DMD
Sander: Disc 24" Master (Kindt-Collins)
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Saw: 10" T.A. Delta Unisaw, 1 HP Sgl. Ph.
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Shaper: Dbl. Spindle Advance, DMD.
Shaper: Y-A No. J-50, Single Spindle, MD.
Veneer Taper: Denniss with Motor
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Nailer, Morgan No. 12 48" OB Cleater Latest Type
Matcher, M-J No. 326 Chain Feed DMD
Planer, Sgl. Crescent P-24 24"x8" BB DMD
Planer, Sgl. Buss No. 4A 30" BB DMD
Planer, Sgl. L. Power No. 2 32" BB DMD
Planer, Dbl. Whitney No. 24A 30" BB DMD
Router, Porter No. 600 2 HP
Sander, Solem SE7-4 End. Bed 67" BB DMD
Sander, Solem SE7-2 End. Bed 30" BB DMD
Saw, Glue Joint, E-C Model E 15 HP
Saw, Glue Joint, Marion Model M 10 HP
Saw, CO, Porter 43-20J Hydracut LH
Saw, CO, Porter SL-43 7½ HP DMD LH
Saw, Dbl. Tilt. Arb., M-J No. 442-MT
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JOINTERS

2—Yates-American 6" No. 1 direct motor driven ball bearing hand jointer
Diehl No. 60 direct motor driven ball bearing glue jointer
Porter 6" direct motor driven ball bearing hand jointer

MOULDERS

Mattison 10" No. 229 electric moulder
Newman 10" No. 412 electric moulder
Vonnegut 6" electric moulder
Woods 4" No. 808M Electric Moulder
Yates-American 10" C-89 electric moulder
Yates-American 9" No. 35 electric moulder

PLANERS

Buss 30" No. 4L direct motor driven ball bearing Single Planer
Buss 30" direct motor driven ball bearing single planer
Greenlee 30" No. 110 six-roll planer
Newman 24" No. 8B ball bearing planer
Whitney 36" No. 29 direct motor driven b.b. single planer

SANDERS

3—Lancaster drawer sanders
Two motored drawer sander
Mattison No. 124 auto. stroke sander
Wysong & Miles 603 automatic stroke sander
Yates-American 43" No. 431 direct motor driven 3-drum endless bed sander
Yates-American 31" No. 413 direct motor driven 2-drum endless bed sander
Yates-American 43" type S23 direct motor driven roll feed sander

SAWS

Beach Roller table direct motor driven b.b. double cut-off saw, No. 3
Diehl No. 724-A hydraulic operated stock saw
Tannewitz Type U tilting arbor direct motor driven ball bearing Variety Saw
Tannewitz 36" direct motor driven ball bearing Band Saw
Yates-American No. GG-3 direct motor driven ball bearing roller table double cut-off saw
Yates Type F-25 variety saw
Yates-American G44 straight line cut-off saw

SHAPERS

1—Onsrud WA50 Auto. Shaper
Onsrud No. W125 auto. shaper
Whitney No. 282 single spindle electric shaper
Whitney No. 234 electric double spindle shaper
2—Whitney No. 134 double spindle electric ball bearing shapers
Whitney Latest Model No. 299 Single Spindle Auto. Shaper

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American No. 1 single end tenoner
Fay & Egan No. 505 electric single end tenoner
Jenkins No. 95 electric double-end tenoner
Wilkin-Challoner No. 720 electric double end tenoner
Wilkin-Challoner No. 620 electric panel sizer with copes

VENEER MACHINERY

Black Brothers No. 116 electric cold press
Dennis Model 3 taping machine
Dependable No. 203 hydraulic cold veneer press
Francis 84" motor driven double roll resinous glue spreader
Taylor Glue Spreader for Panel Flow

MISCELLANEOUS

Diehl No. 77 Waterfall grooving machine
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IS THE U. S. LOSING THE RACE?

Anyone interested in America's economic future looks with horror on the implications of the January shipments of the American machine tool builders. These implications are shocking. How does anyone, having his country's welfare at heart, sleep soundly at night? And it makes no difference whether one manufactures machine tools, autos, bolts, grinding wheels, appliances, or toys.

Shipments of all types of metal cutting machine tools totaled $35.5 million. Of these $14.5 million were foreign shipments, or a whopping 41%. The balance, or $21 million, were domestic shipments. The implications which worry us lie in the ratio of foreign to domestic orders. To be sure, the builders are thankful for the foreign business, without them their plight would be catastrophic.

Why are foreign industries, especially European automotive, plunking down hard cash for American machine tools? Primarily, because the European machine tool industry, producing to capacity, cannot meet the demand. (By contrast, our own machine tool industry is below 50% of capacity.) The significant point is this: foreign industries are expanding and modernizing so rapidly that their own machine tool industry cannot meet the programs of their industries. And when we reflect that West Germany alone has over 500 machine tool builders, (the U.S. has 376), and add to this the builders of Great Britain, France, Italy, Belgium, Switzerland, Japan and the Soviet bloc, we are staggered by the foreign machine tool industry, producing to capacity, raising the industrial facilities of the western world to monumental heights. Compare this to the snails-pace program of the U.S., building little brown mole hills!

With the exception of the U.S., all industrial nations are arming for an assault on world markets, including our own domestic market.

With the exception of the U.S., all industrial nations are modernizing their facilities, replacing their equipment so that the world's needs for products of every kind and description will be satisfied. Not satisfied with American goods! No, the goods of other, better equipped nations!

The U.S. is not modernizing at the rate it should, it is not replacing obsolete clunkers, it is not reinvesting in productive equipment and facilities. The climate, tax-wise, for modernization and capital expenditures has not only been poor, it's been criminal.* Thus we see foreign customers buying our machine tools, in addition to their own, to increase productivity; at the same time we run around, spread gloom, complain, and let the old clunkers rattle around for another five years.

The goods and products which foreign nations will produce economically with our tools will haunt us. The import picture (and we have no fight with importers, believing, as we do, in free trade) will be black for American business and for the American worker. We will never compete in world markets, or our own domestic markets, with foreign producers who operate efficiently in modern plants; and who pay lower wages.

The U.S. must replace, must modernize, must grow up industrially and take advantage of new techniques, it must forge its weapons in a healthy fiscal and a sound depreciation climate. This is as urgent as finding a bucket for bailing out a water-filled boat.

*We are encouraged by President Kennedy's awareness of this problem and by his desire to do something about it. Report of this is in another part of the current issue.

Wm. F. Schleicher

Vice President & Editorial Director

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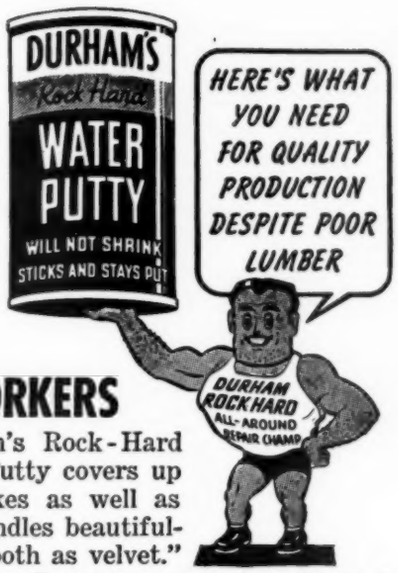
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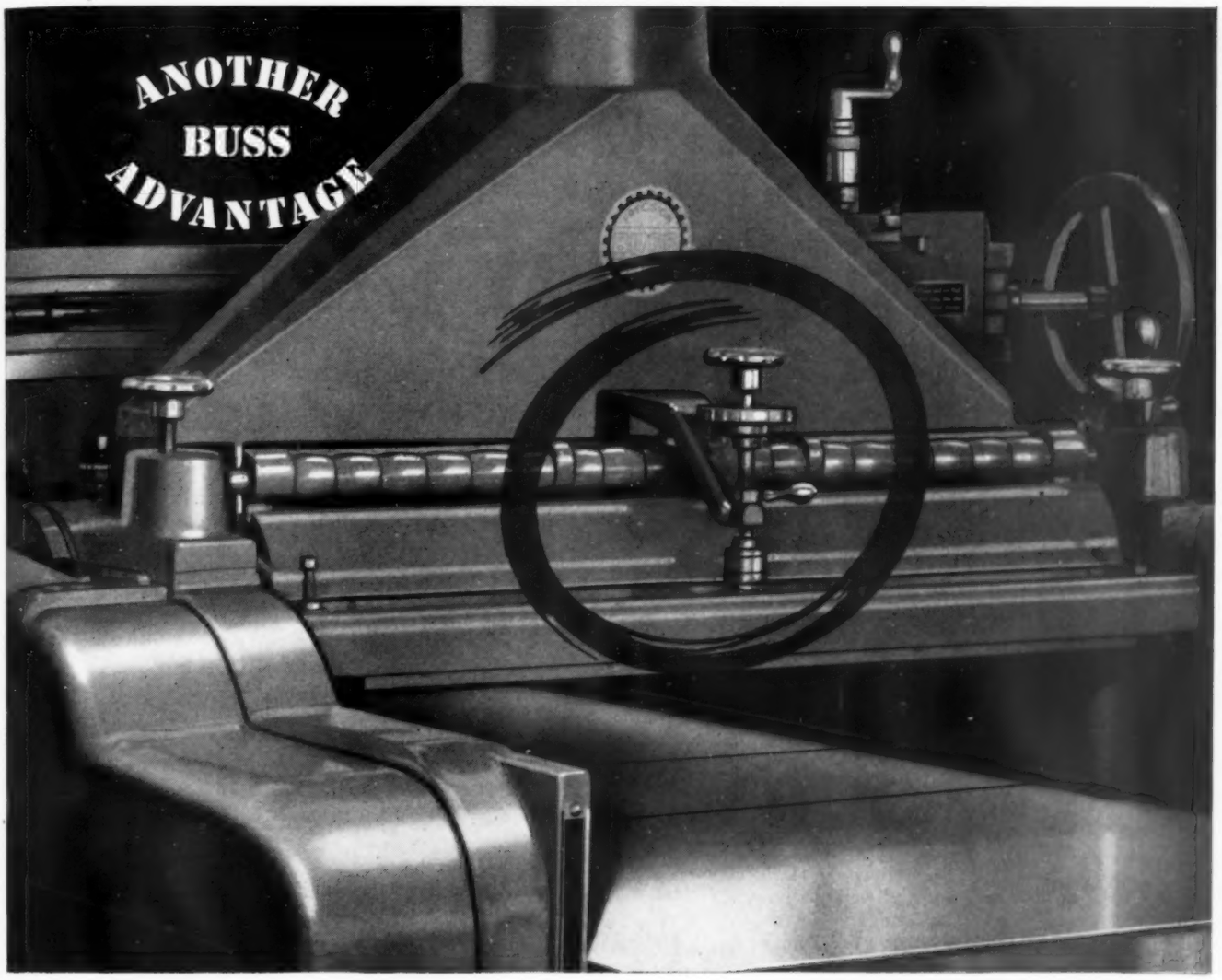
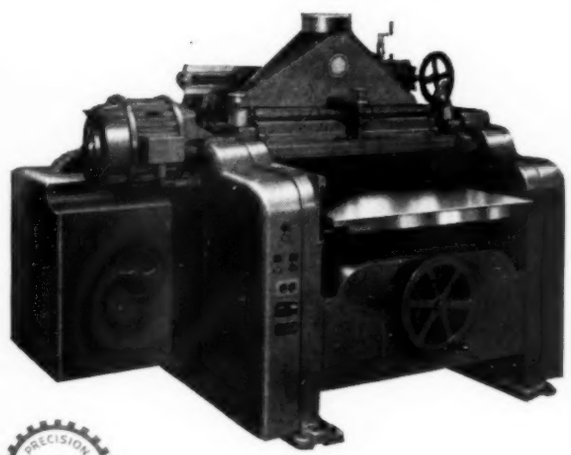


INSTANT MICROMETER ADJUSTMENT OF SECTIONAL CHIPBREAKER



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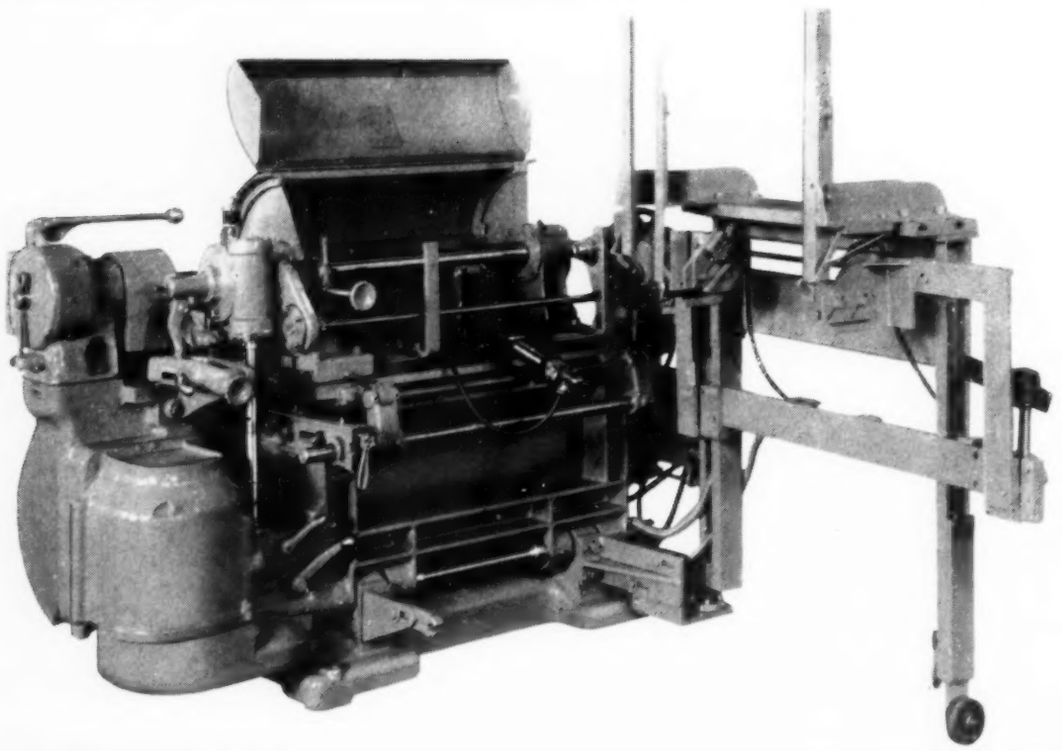

Mattison "66" Automatic Shaping Lathe doubles productivity in furniture factory

Key to woodworking profits at Bradley-Southern Division, Potlatch Forests, Inc., Warren, Arkansas, is increasing productivity per man-hour while continuing to upgrade quality. Mattison No. "66" shaping lathes make this possible—they center, turn, and eject finished work automatically. The operator just keeps the hoppers full.

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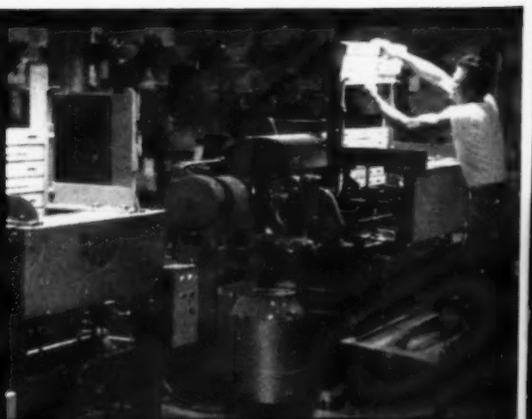
If you are interested in improving your profits through increased productivity, ask your Mattison dealer to arrange a demonstration at the factory or in a "Mattison-equipped" plant near you. A note direct to us for detailed information will receive a prompt reply.



One man operates two No. "66" automatic shaping lathes at Bradley-Southern Division, Potlatch Forests, Inc. Hopper feed attachment can be swung outward to give unobstructed access to knives for whetting, touching up, or setting.

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